# WRIGHTIA

*A Botanical Journal*

VOLUME 4

Numbers 1-6 and Index

1968 – 1971

EDITOR

CYRUS LONGWORTH LUNDELL

PUBLISHED BY

TEXAS RESEARCH FOUNDATION

RENNER, TEXAS

THE HECKMAN BINDERY, INC. N. MANCHESTER, INDIANA

MISSOURI BOTANICAL

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Printed in the U.S.A.
Etheridge Printing Company
Dallas, Texas

# CONTENTS OF VOLUME 4

*Complete in Six Numbers*


Number 1, July 15, 1968

The Lundell Rare Book Library. By Roy Roddy ..... 1

Nomenclatural Changes and Taxonomic Notes on Heterotheca, Including Chrysopsis, in Texas and Adjacent States. By Vernon L. Harms ..... 8

Two New Species of Mentzelia in Texas. By Henry J. Thompson and Joyce E. Zavortink ..... 21

Some Additions and Corrections to the Flora of Texas–V. By Donovan S. Correll ..... 25

A New Species of Brazoria (Labiatae) from East Texas. By Cyrus Longworth Lundell ..... 29

Studies of Tropical American Plants–IV. By Cyrus Longworth Lundell ..... 31

Number 2, December 31, 1968

New Genera and Species of American Myrsinaceae–I. By Cyrus Longworth Lundell ..... 53

Some Additions and Corrections to the Flora of Texas–VI. By Donovan S. Correll ..... 74

Studies of Tropical American Plants–V. By Cyrus Longworth Lundell ..... 79

Number 3, October 15, 1969

Studies of American Plants–I. By Cyrus Longworth Lundell ..... 97

Number 4, August 10, 1970

Studies of American Plants–II. By Cyrus Longworth Lundell ..... 129

CONTENTS

Number 5, March 31, 1971

Studies of American Plants—III. By Cyrus Longworth Lundell . . . . 153

Number 6, December 31, 1971

Studies of American Plants—IV. By Cyrus Longworth Lundell . . . . 173

December 31, 1971

Index . . . . . 185

VOLUME 4 JULY, 1968 NUMBER 1

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CONTENTS

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By Roy Roddy ..... 1

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By Vernon L. Harms ..... 8

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By Henry J. Thompson and Joyce E. Zavortink ..... 21

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AUG 8 - 1968

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PUBLISHED BY
TEXAS RESEARCH FOUNDATION
RENNER, TEXAS

# WRIGHTIA

WRIGHTIA, a botanical journal, is a publication of Texas Research Foundation. The contributions are by staff members and collaborators. Each volume will contain a series of numbers. The numbers will be issued at irregular intervals over a period of several years.

VOLUME 4, NUMBER 1
ISSUED JULY 15, 1968

Printed in the U.S.A.
Etheridge Printing Company
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VOLUME 4 JULY, 1968 NUMBER 1

# THE LUNDELL RARE BOOK LIBRARY

ROY RODDY

The emergence of Texas Research Foundation as a growing educational, cultural and scientific center was highlighted on May 22, 1968 by the formal opening of the Lundell Rare Book Library at Renner. A feature of the Foundation's Twenty-fifth Anniversary Celebration, the event attracted over two thousand visitors.

The establishment of the library was made possible through a major gift from Dr. C. L. Lundell, Director of the Foundation, and Mrs. C. L. Lundell.

The rare book collection has been assembled over the past quarter century through Dr. Lundell's personal efforts and through gifts from friends of the Foundation. It contains some 4,600 volumes, many of which date back to the beginnings of modern science. Though primarily a natural history library, most of the works are botanical, with the emphasis on horticulture.

The Lundell Rare Book Library has been founded to serve as a reference center for scientific research as well as a primary source of historical data on the development of the plant sciences.

Facilities provided by Dr. and Mrs. C. L. Lundell to house the Lundell Rare Book Library include a reading room and a vault in the Foundation's new library building at Renner, a stately structure of Colonial architecture completed and occupied late in 1967.

The walnut panelled reading room is spacious. Genuine antiques and fine reproductions, together with rare old books of great value, combine to provide an atmosphere of elegant simplicity.

The room achieves the refinement of Colonial Williamsburg decor with massive antique chandelier, large fireplace surmounted by a reproduction of the mantle in the Governor's Palace at Williamsburg, panelled walls and doors from the Williamsburg Capitol, parquet floor of walnut-stained oak, and oriental rugs.

Cabinets of wainscot height and bookcases with lead mullions line the two inner walls, south and east, of the reading room.

The furnishings are Colonial antiques and authentic reproductions of antiques, many of which Dr. and Mrs. Lundell personally selected in Williamsburg, Virginia.

The heavy brass chandelier with its twelve arms, double eagle and pendant ball is the most striking antique. Of particular interest is a fine tilt-top table of Chippendale design, an authentic copy of the revolving tilt-top table now in the study of the George Wythe House at Williamsburg.

The vault is a fireproof, controlled-environment repository furnished with modern library shelves and equipment.

The rare volumes on the vault shelves and in the reading room cases can convey scholars backward more than four centuries in time to the origins of modern science. Among the titles are many written by the most prominent scientists who led western civilization from the darkness of the Middle Ages.

"The greater portion of the library came from Professor Oakes Ames' personal reference collection, which we acquired early in 1957," Dr. Lundell said.

Professor Ames, who died in 1950, was a famous author and a teacher for 50 years in Harvard University's botanical department at Cambridge, Massachusetts. His library consisted of 4,000 volumes and a quantity of unbound material, a collection that the Foundation Director regards as unquestionably the finest botanical library ever assembled in this country for personal use.

Of the 4,600 volumes in the Lundell Rare Book Library, approximately 2,126 are bound books, the remainder serials. The books include five published in the Sixteenth Century, 19 in the Seventeenth, 242 in the Eighteenth, 1,710 in the Nineteenth and 150 in the Twentieth. Many of the older books are bound in hand-tooled leather inlaid with gold.

Any person wanting a complete list of the volumes in the Lundell Rare Book Library may obtain the list by writing to the Librarian of Texas Research Foundation.

Most of the famous names in botanical science are represented in the collection: Adanson, Darwin, W. J. and J. D. Hooker, Lindley, Reichenbach, Scopoli, Bentham, Bailey, Sargent, Hemsley, DeCandolle, Linnaeus, Gray, Jacquin, Lamarck, Sagra, Swartz and numerous others.

The two oldest volumes now in the Lundell Rare Book Library are Leonhard Fuch's "De historia stirpium commentarii insignes," and "Histoire des plantes." The author published them in Paris in 1547 and 1549.

Probably one of the most valuable books in the library is an average size volume that has the dog-eared appearance of an offering in a second-hand book stall.

He would be one lucky scholar, though, who could walk away the owner of a first edition "Species Plantarum" by Carl Linnaeus (or Carl Linne), a work published in 1753!

Three of the rare books at Renner are of dramatic as well as historical interest in the current post-Linnean period.

Fig. 1. Front view of the library building at Renner. It houses the Lundell Rare Book Library, and the Suggs Library, the latter the general library of Texas Research Foundation.

The first, published at Berlin in 1793 by C. K. Sprengel, advanced the hypothesis that plants are fertilized by insects — "Das entdeckte Geheimnis der Natur in Bau und in der Befruchtung der Blumen."

Sprengel's work was acquired in the Ames collection, and a flyleaf notation in Professor Ames' handwriting reveals that the book had been owned by Hermann Müller.

Müller himself annotated the Sprengel text and used it as a source in writing his own book on the same subject — "Die Befruchtung der Blumen durch insekten" — which was published at Leipzig in 1873. Müller's work also is on the shelf at Renner.

Fig. 2. A corner of the reading room of the Lundell Rare Book Library of Texas Research Foundation.

Fig. 3. Dr. C. L. Lundell (on left) and Dr. J. George Harrar, President of The Rockefeller Foundation, in vault of the Lundell Rare Book Library at Renner on May 22, 1968. Dr. Harrar was principal speaker at the Twenty-fifth Anniversary Celebration of Texas Research Foundation.

The third book in this interesting flow of botanical investigation is "The Fertilisation of Flowers," written by D'Arcy W. Thompson and published in London in 1883, exactly 90 years after Sprengel published his book. Thompson used Sprengel and Müller as sources in writing "The Fertilisation of Flowers."

The first edition Thompson, also on the shelf at Renner, is in turn the source of modern texts on the fertilization of plants by insects. So this particular phase of botanical science can be traced back 90 years to its origin.

Another rare book in the library is interesting because it is completely handwritten. The volume is G. C. Fagon's catalogue of plants in the Paris Botanical Gardens in 1674—"Horti Regii Parisiensis. Plantarum Catalogus."

The Lundell Rare Book Library contains most of the works by such early American botanists as John Torrey, Asa Gray, Thomas Nuttall, Amos Eaton, Lewis Caleb Beck, E. L. Greene and George Engelmann.

The shelves also contain numerous books describing early voyages and explorations, surveys of the Texas-Mexico boundary and surveys of railroad routes from the East to the West coasts of North America.

There are books detailing the botanical discoveries of Captain James Cook's Eighteenth Century voyages. Other works describe the botanical findings of explorations in Central and South America and in the islands of the Caribbean Sea.

Books range from vest pocket size to tomes weighing 50 pounds or more. Some are printed solid and are therefore difficult to read. Others, such as H.G.L. Reichenbach's "Icones," present lavish and beautifully colored illustrations of plants.

In any discussion of the collection, one question invariably is asked: "In this day of rapid, perfect duplication, what makes a book rare?"

"There are several criteria," Dr. Lundell explained. "A book may be rare due to its early printing date, its limited issue, the special character and quality of the edition, who wrote it, who bound it, who illustrated or engraved it, who handled it and perhaps annotated it, and its availability in the original edition."

Though the Lundell Rare Book Library has been assembled and catalogued and is now open to scholars, it is still growing and will continue to grow. Its creators intend to increase its scope and value to an even greater level of national prominence.

Fig. 4. Reading room of the Lundell Rare Book Library of Texas Research Foundation.

# NOMENCLATURAL CHANGES AND TAXONOMIC NOTES ON HETEROTHECA, INCLUDING CHRYSOPSIS, IN TEXAS AND ADJACENT STATES

VERNON L. HARMS[1]

The acceptance of a broadened concept of the genus *Heterotheca* to include *Chrysopsis*, on the basis of morphological evidence (Shinners, 1951; Wagenknecht, 1960) and cytogenetic data (Harms, 1965a), necessitates several nomenclatural changes for members of the genus from Texas and surrounding states in addition to those made by Shinners (1951). Also a taxonomic reconsideration of certain species is warranted.
Grateful acknowledgment is made to the curators of the following Texas herbaria for their kind loans of materials which aided this study: The University of Texas (TEX); Lundell Herbarium, Texas Research Foundation (LL); Texas A & M University (TAES); and Southern Methodist University (SMU).

The species of the enlarged genus *Heterotheca* seem best referred to four sections, of which three are represented in the Texas area.

## I. HETEROTHECA Cass. section HETEROTHECA.

This section, characterized by epappose ray achenes, includes the species of *Heterotheca* sensu stricta recently monographed by Wagenknecht (1960). All Texas representatives of sect. *Heterotheca* belong to the *Heterotheca subaxillaris* complex. This complex was long accepted as a single, variable species, but Wagenknecht (1960) distinguished the taller, denser- and longer-pubescent, interior type as *H. latifolia* Buckl., considering it specifically distinct from the lower, shorter-pubescent, more coastal *H. subaxillaris* (Lam.) Britt. & Rusby. In addition, he recognized a robust, southwestern form of the complex with highly glandular peduncles and involucres, and a general gigantism of most quantitative characters, as a new species, *H. psammophila*. Within *H. subaxillaris*, Wagenknecht (1960) described var. *procumbens* which differed from the typical var. *subaxillaris* by its procumbent habit and nearly entire leaves with obscure lateral veins. Burk (1961) concluded that the procumbent habit of plants referrable to *H. subaxillaris* var. *procumbens* probably represented only an environmentally induced modification in response to the more rigorous conditions of the open, coastal, sand dune habitats, and certainly the other distinguishing characters seem questionable. However, if this variant does deserve taxonomic recognition, Burk is probably correct in considering the correct varietal name to be *H. subaxillaris* var.

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*petiolaris* Benke, although Wagenknecht (1960) had referred the type of the latter to *H. latifolia*. Within *H. latifolia*, Wagenknecht distinguished a more northern variant as var. *Macgregoris*, which differed from the typical var. *latifolia* by its denser and longer hirsute pubescence of both the upper and lower leaf surfaces, less coarsely toothed leaves, and shorter stature. He also described as var. *arkansana*, a more robust variant of *H. latifolia* with coarser branches, more prominent lateral veins of leaves, and larger heads. Of these varieties of *H. latifolia*, var. *Macgregoris* appears to be a meaningful geographical race and fairly well-marked primarily on the basis of pubescence, but var. *arkansana* seems considerably less distinct and, as greenhouse tests have suggested (Harms, 1965b), it may represent little more than a more luxuriant growth form of var. *Macgregoris* under moister and shadier conditions. All of the above recognized species and varieties have been reported from Texas [see Wagenknecht (1960) for the Texas distribution, and Harms (1965b) for a generalized map]. Presumably all members of the *H. subaxillaris* s. lat. complex are diploid with a chromosome number of n=9, based upon reports for the various species by Wagenknecht (1960), Turner (1959), Solbrig, et al. (1964), Harms (1965b), and Smith (1965). It has been shown by Burk (1961) and Harms (1965b) that the members of the *H. subaxillaris* complex are notably subject to environmental modification. As emphasized elsewhere (Harms, 1965b), in the light of this extreme phenotypic plasticity, the presence of apparent natural intergrades between species, and the ease of obtaining artificial interspecific hybrids and their generally high fertility, the *H. subaxillaris* complex as a whole seems in need of careful restudy to determine the relative distinctness of the recognized species and varieties. Perhaps this entire complex should still be accepted as a single, polymorphic, polytypic species.

II. **Heterotheca** Cass. section **Pityopsis** (Nutt.) Harms, comb. nov. *Pityopsis* Nutt., Trans. Am. Philos. Soc., s.2, 7: 317–318. 1841. *Chrysopsis* sect. *Pityopsis* (Nutt.) Torr. & Gray, Fl. N. Am. 2: 252. 1843. *Heyfeldera* Bip. Schulz, Flora 36: 35. 1885.

This section, which is characterized by radiate heads, pappose ray florets, narrowly cylindrical to fusiform achenes, and linear to graminoid, parallel-nerved, fine, silvery-sericeous leaves, is represented in the Texas area only by members of the *Heterotheca graminifolia* complex. This complex badly needs further study, not only in respect to the variation patterns but also in regard to the application of names. The primary nomenclatural problem involves some uncertainty regarding the nature of the type materials of Michaux's *Inula graminifolia* and Willdenow's *Erigeron nervosum*. Before 1942, these two names were generally considered synonymous, both applying to something quite similar, if not identical, to the nonglandular "*argentea*" form. However, Fernald (1942)

concluded that the type of *I. graminifolia* belonged instead to the more glandular "*aspera*" form, and under this interpretation, the specific epithet "*graminifolia*" replaces that of "*aspera*" and "*nervosa*" becomes applicable to the taxon previously taken as *C. graminifolia*. Until the situation can be carefully restudied, Fernald's conclusions seem best accepted, although with some reservations, since, apparently without actually seeing the type materials, he based his considerations only upon the original species' descriptions with primary emphasis on the character of glandular versus nonglandular involucres instead of the more meaningful presence or absence of glandularity on the peduncles and inflorescence branches.

The confusing variation within the *Heterotheca graminifolia* complex seems resolvable into three relatively distinct series of forms specifically recognizable as follows:

Key to Species of the *Heterotheca graminifolia* Complex

A. Peduncles, inflorescence branches, and stems nonglandular; involucres either nonglandular or more or less glandular toward the phyllary tips; phyllaries intergrading with the peduncular bracts below; plants of southeastern United States from Fla., n. & w. to Delaware, s. Ohio, s. Ark., s.e. Okla., and e. Tex., disjunctly present in Guatemala and s. Mex. . . . . 1. *H. nervosa.*

A. Peduncles, inflorescence branches, and involucres copiously glandular; phyllaries not intergrading with the peduncular bracts below.

B. Lower stems non-glandular; heads more than 10 (mostly over 20), small, with involucral height mostly less than 8 mm.; ligule length various, but mostly shorter than 1 cm.; a coastal plains species from Va. to La. . . . . 2. *H. graminifolia.*

B. Lower as well as upper stems glandular; heads fewer than 10, large, with involucral height usually exceeding 8 mm.; ligules mostly longer than 1 cm.; a coastal plains species from Fla. to La. and s.e. Okla. . . . . 3. *H. oligantha.*

1. HETEROTHECA NERVOSA (Willd.) Shinners, Field & Lab., 19: 68. 1951. *Erigeron nervosum* Willd., Sp. Pl., ed. 4, 1953. 1803. *Inula argentea* Pers., Syn. Pl. 2: 452. 1807. *?Erigeron glandulosum* Poir., in Lamarck. Encyel. Meth. 7: 487. 1808. *Chrysopsis argentea* (Pers.) Ell., Sk. Bot. S.C. & Ga. 2: 334. 1824. *Inula graminifolia* Michx. *β tenuifolia* Torr., Ann. Lyc. N.Y. 2: 212. 1828. *?Diplopappus sericeus* Hook., Comp. Bot. Mag. 1: 97. 1836. *Pityopsis argentea* (Pers.) Nutt., Trans. Am. Philos. Soc., s.2. 7: 318. 1841. *?Heyfeldera sericea* Schulz., Fl. 36: 35. 1853. *Chrysopsis graminifolia* var. *latifolia* Fern., Bot. Gaz. 24: 434. 1897. *C. microcephala* Small, Fl. S.E. U.S., 1182. 1903. *C. Tracyi* Small, Ibid. *C. latifolia* (Fern.) Small, Ibid. *C. graminifolia* sensu Small, Ibid. *Pityopsis microcephala* (Small) Small,

Man. S.E. Fl., 1341. 1933. *P. Tracyi* (Small) Small, Ibid. *P. graminifolia* sensu Small, Ibid. *P. graminifolia* var. *latifolia* (Fern.) Small, Ibid. *Chrysopsis Correllii* Fern., Rhod. 44: 470. 1942. *C. nervosum* (Willd.) Fern., Ibid. *C. nervosa* var. *virgata* Fern., Ibid., 474. *C. nervosum* var. *stenolepis* Fern., Ibid.

Although the present interpretation of *Heterotheca nervosa* is unusually broad, there seems to be a complete intergradation of forms with nonglandular versus glandular involucres, larger versus smaller heads, rhizomatous versus nonrhizomatous habit, and narrower versus broader leaves. Thus, it seems impossible to clearly distinguish *H. nervosa* from such other described types as *argentea*, *microcephala*, *Correllii*, *Tracyi* and *latifolia*, although some of them may be found to represent meaningful intraspecific taxa. Turner, et al. (1961) and Smith (1965) have reported chromosome numbers of n=9 for specimens falling under the broad concept of *H. nervosa* as defined above (both reported as *Chrysopsis graminifolia*). This is apparently the only species of the *H. graminifolia* complex known to occur in Texas (see fig. 5), but since *H. oligantha* has been reported from closely adjacent western Louisiana and southeastern Oklahoma, its occurrence in extreme eastern Texas is not unlikely.

2. HETEROTHECA GRAMINIFOLIA (Michx.) Shinners, Field & Lab. 19: 17. 1951. *Inula graminifolia* Michx., Fl. Bor. Amer. 2: 122. 1803. *Chrysopsis graminifolia* (Michx.) Ell., Sk. Bot. S.C. & Ga. 2: 334. 1824. *Diplopappus graminifolius* (Michx.) Less., Linn. 5: 144. 1830. *Pityopsis graminifolia* (Michx.) Nutt., Trans. Am. Philos. Soc., s. 2, 7: 317. 1841. *Chrysopsis aspera* Shuttlew., Bot., Zeit. 3: 221. 1845 (nomen nudum). *C. aspera* Shuttlew. ex Gray, Syn. Fl. 1$^2$: 121. 1884 (in synon). *C. graminifolia* var. *aspera* (Shuttlew.) Gray, Ibid. *Diplogon graminifolium* (Michx.) Kuntze, Rev. Gen. 2: 334. 1891. *Pityopsis aspera* (Shuttlew.) Small, Man. S.E. Fl., 1341. 1933. *Chrysopsis adenolepis* Fern., Rhod. 44: 471. 1942.

Under a broader species interpretation, *H. graminifolia* and *H. nervosa*, as well as *H. oligantha*, might all be considered conspecific. However, the n=18 chromosome number determination by Smith (1965) for a plant of *H. graminifolia* (reported as *C. aspera*), in contrast to the n=9 reports for *H. nervosa*, at least suggests that the apparent morphological discontinuity between *H. nervosa* and *H. graminifolia* might indeed reflect a biological separation based upon different ploidy levels.

3. **Heterotheca oligantha** (Chapm.) Harms, comb. nov. *Chrysopsis oligantha* Chapm. ex Torr. & Gray, Fl. N. Am. 2: 253. 1843. *Pityopsis oligantha* (Chapm.) Small, Man. S.E. Fl., 1341. 1933.

This species appears amply distinct although it is broadly sympatric with *H. nervosa* and *H. graminifolia*.

III. **Heterotheca** section **Chrysopsis** (Nutt.) Harms, comb. nov. *Siderianthus* Nutt., in Fras. Cat., 1813 (pro parte; nomen nudum). *Diplogon* Raf., Am. Mo. Mag. & Crit. Rev. 2: 268. 1818 (nom. rejec.). *Inula* sect. *Chrysopsis* Nutt., Rev. Gen. N. Am. Pl. 2: 150. 1818. *Chrysopsis* (Nutt.) Ell., Sk. Bot. S.C. & Ga. 2: 333. 1824. *Chrysopsis* sect. *Herbaceae* DC., Prodr. 5: 326. 1836. *Hectorea* DC., Prodr. 5: 95. 1836. *Chrysopsis* subgen.

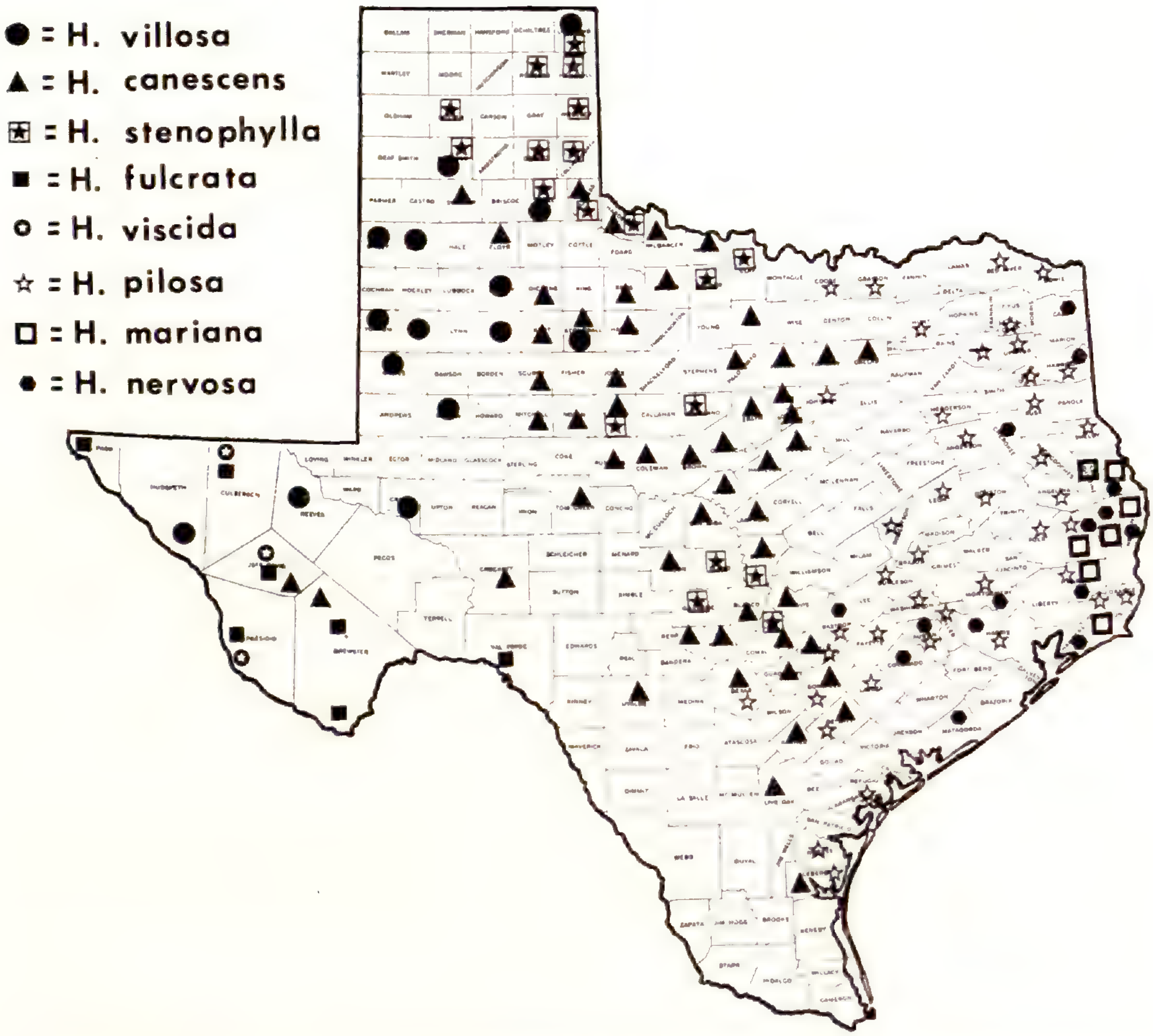


Fig. 5. Distribution of *Heterotheca* species in Texas, excepting those of section *Heterotheca*, based on county records known to the author.

*Phyllotheca* Nutt., Trans. Am. Phil. Soc., s.2, 7: 317. 1841. *Chrysopsis* subgen. *Phyllopappus* Nutt., Ibid. *Chrysopsis* sect. *Euchrysopsis* Torr. & Gray, Fl. N. Am. 2: 254–5. 1843. *Chrysopsis* sect. *Achyraea* Torr. & Gray, Ibid., 256.

This section includes those members of the genus *Heterotheca* with radiate heads, pappose ray florets, non-graminoid and non-parallel-nerved leaves, and obovoid to conical, usually angular achenes. Section *Chrysopsis* seems divisable into three more or less clear-cut species groups: (1) the deciduously soft-pubescent *H. mariana* — *H. gossypina* — *H. trichophylla* group of perennial or biennial species of southeastern United States, (2) the persistently pilose-pubescent annual species, *H. pilosa*, of the lower and middle Mississippi River Valley, and (3) the persistently firm-pubescent, perennial species of the *H. villosa* complex of midwestern and western United States.

1. HETEROTHECA MARIANA (L.) Shinners, Field & Lab. 19: 71. 1951. *Inula mariana* L., Sp. Pl., ed. 2, 2: 1240. 1763. *Inula glandulosa* Lam., Encycl. Meth. Bot. 3: 259. 1789. *Chrysopsis mariana* (L.) Ell., Sk. S.C. & Ga. 2: 335. 1824. *Diplopappus marianus* (L.) Cass. ex Hook., Compan. Bot. Mag. 1: 97. 1836. *Diplogon mariana* (L.) Raf. ex DC., Prodr. 5: 327. 1836. *Chrysopsis floridana* Small, Fl. S.E. U.S., 1183. 1903. *C. mariana* var. *floridana* (Small) Fern., Rhod. 39: 455. 1937. *C. mariana* var. *macradenia* Fern., Ibid. *C. mariana* forma *fulgens* Fern., Rhod. 48: 41–60. 1946.

*Heterotheca mariana* in eastern Texas (fig. 5) and adjacent areas appears to be a clear-cut and consistent species, although farther east in West Virginia, Virginia, and North Carolina, a variant with more glandular involucres and inflorescence branches can be distinguished as **Heterotheca mariana** var. **macradenia** (Fern.) Harms, comb. nov. [*Chrysopsis mariana* var. *macradenia* Fern., Rhod. 39: 455. 1937], and in Florida an even more marked geographical variant with the pubescence more persistent on the lower herbage and tomentose as well as arachnoid is distinguishable as **Heterotheca mariana** subsp. **floridana** (Small) Harms, comb. nov. [*Chrysopsis floridana* Small, Fl. S.E. U.S., 1183. 1903; *C. mariana* var. *floridana* (Small) Fern., Rhod. 39: 455. 1937].

2. HETEROTHECA PILOSA (Nutt.) Shinners, Field & Lab. 19: 68. 1951. *Chrysopsis pilosa* Nutt., Journ. Acad. Sci. Phila. 7: 66–67. 1834 [not *C. pilosa* (Walt.) Britt., Mem. Torr. Bot. Club. 5: 316. 1894]. *C. Nuttallii* Britt., Ibid. *Chrysopsis* subgen. *Phyllopappus* Nutt., Trans. Am. Phil Soc., s.2, 7: 317. 1841. *Chrysopsis* sect. *Achyraea* Torr. & Gray, Fl. N. Am. 2: 254–5. 1843.

This highly distinctive annual species, ranging from eastern Texas (fig. 5) and Louisiana, north to southeastern Kansas and southern Missouri, seems to have its nearest affinities with the *H. trichophylla* (Nutt.)

Shinners s. lat. group, although the latter is now restricted to the Florida area. However, *H. pilosa* also shows some similarities to the *H. villosa* group, especially to the softer pubescent, more flexuous-leaved *H. camporum* (Greene) Shinners, in possessing a definitive, persistent, and double stem pubescence. *H. pilosa* may represent the culmination of an evolutionary trend which is partly exemplified in the related *H. trichophylla* complex, from a perennial to biennial to finally (in *H. pilosa*) annual habit, accompanied by an aneuploid reduction of chromosome numbers from n=9 basic for the genus as a whole, to n=5 reported for *H. trichophylla* (*subulata* form) by Turner, et al. (1961), to n=4 for *H. pilosa* reported by Cherry (1959) for Texas material and verified by the author for Kansas material.

3. HETEROTHECA VILLOSA (Pursh) Shinners, Field & Lab. 29: 71. 1951. *Sideranthus integrifolius* Nutt., in Fras. Cat., no. 80. 1813 (nom. nudum). *Amellus villosus* Pursh, Fl. Am. Sept. 2: 564. 1814. *Inula villosa* (Pursh) Nutt., Gen. N. Am. Pl. 2: 151. 1818. *Diplopappus villosus* (Pursh) Hook., Fl. Bor. Am. 27: 22. 1834. *Diplopappus hispidus* Hook., Ibid. *Chrysopsis villosa* (Pursh) Nutt. ex DC., Prodr. 5: 327. 1836. *C. hispida* (Hook.) DC., Prodr. 7: 279. 1838. *C. villosa β minor* Hook., Pl. Geyer, Lond. Journ. Bot. 6: 244. *C. foliosa* Nutt., Trans. Am. Philos. Soc., s.2, 7: 216. 1841. *C. sessiliflora* Nutt., Ibid., 317. *Chrysopsis* subgen. *Phyllotheca* Nutt., Ibid., 317. *C. mollis* Nutt., Ibid. *C. villosa hispida* (Hook.) Gray, Proc. Acad. Phila. 1863: 65. 1864. *C. villosa foliosa* Eaton in King, Geol. Expl. 40th Par. 1871. *C. villosa* var. *hispida* (Hook.) Gray, Syn. Fl. $1^2$: 123. 1884. *C. villosa* var. *sessiliflora* (Nutt.) Gray, Ibid. *C. villosa* var. *discoidea* Gray, Ibid. *Diplogon villosum* Kuntze, Rev. Gen. Pl. 1: 334. 1891. *D. villosum* var. *discoideum* (Gray) Kuntze, Ibid. *Chrysopsis pumila* Greene, Erythea 2: 96. 1894. *C. columbiana* Greene, Ibid. *C. caespitosa* Jones, Proc. Calif. Acad. Sci., s.2, 5: 694. 1895 [not *C. caespitosa* Nutt., Journ. Acad. Phila. 7: 33. 1834]. *C. villosa* var. *scabra* Eastw., Proc. Calif. Acad. Sci., s.2, 6: 294–5. 1896. *C. hirsuta* Greene, Pittona 3: 296. 1898. *C. depressa* Rydb., Mem. N.Y. Bot. Gard. 1: 381. 1900. *C. Bakeri* Greene, Pittonia 4: 153. 1900. *C. hirsutissima* Greene, Ibid., 153–154. *C. pedunculata* Greene, Ibid., 154. *C. caudata* Rydb., Bull. Torr. Bot. Club 31: 648. 1904. *C. amplifolia* Rydb., Ibid. *C. alpicola* Rydb., Ibid., 649. *C. imbricata* A. Nels., Bot. Gaz. 37: 263. 1904. *C. californica* Elmer, Bot. Gaz. 39: 48. 1905. *C. Cooperi* A. Nels., Bot. Gaz. 40: 63–64. 1905. *C. alpicola* var. *glomerata* A. Nels., Ibid. *C. foliosa imbricata* A. Nels., in Coult. & Nels., Man. Bot. Rocky Mts., 493. 1909. *C. foliosa amplifolia* (Rydb.) A. Nels., Ibid. *C. Butleri* Rydb., Bull. Torr. Bot. Club 37: 129. 1910. *C. grandis* Rydb., Ibid., 129–130. *C. Barbata* Rydb., Ibid. *C. angustifolia* Rydb., Ibid., 128–129. *C. Jonesii* Blake, in Tidestrom, Contrib. U.S. Nat. Herb. 25: 537. 1925. *C. Ballardi* Rydb., Brittonia 1: 100. 1931. *?C. elata* Osterh., Bull. Torr. Bot. Club 57: 560. 1931. *C. villosa* var. *angusti-*

*folia* (Rydb.) Cronq., Bull. Torr. Bot. Club 74: 150. 1947. *C. villosa* var. *foliosa* (Nutt.) Cronq., Ibid. *C. wisconsinensis* Shinners, Wrightia 1: 218–219. 1948. *Heterotheca wisconsinensis* (Shinners) Shinners, Field & Lab. 19: 71. 1951. *H. foliosa* (Nutt.) Shinners, Ibid. *H. sessiliflora* (Nutt.) Shinners, Ibid.

The *Heterotheca villosa* complex s. lat., includes all those midwestern and western perennial species with firm, relatively persistent pubescence, and the stem pubescence consisting of two size classes with the primary hairs divergent. This group has long represented a source of taxonomic confusion and been in need of intensive investigation. Over 40 species have been variously described within the group. Some workers, such as Greene (1894, etc.) and Rydberg (1917, 1932) recognized a multitude of species, while others, notably Gray (1884) and more recently Cronquist (1947, 1952, 1955), have taken the opposite extreme of considering the entire complex to represent only a single variable species with a supposed intergradation of all included forms. The author's biosystematic studies in this group (Harms, in press) would indicate that both extremes are incorrect. Numerous chromosome counts by the author reveal two ploidy levels in the complex. The different diploid (n=9) types seem best recognized as several separate species. However, since extensive intergradation is apparent between nearly all of the tetraploid (n=18) forms, with the exception of *H. camporum* of the middle Mississippi and Ohio River valleys, they seem best lumped together as a single, high variable, widespread species, *H. villosa*. In western Texas, where this species is fairly common (fig. 5), the variation within *H. villosa* is mostly referable to either var. *foliosa* or var. *angustifolia*. These varieties, which are both more distinct elsewhere, tend to intergrate on a broad scale in Texas and much material appears intermediate between them.

## Key to Texas Varieties of *Heterotheca villosa*

A. Herbage and involucres densely appressed canescent-pubescent; middle leaves mostly more broadly oblanceolate; heads larger, with involucral diameters mostly over 8 mm.; heads appearing somewhat pedunculate, with peduncular leaves distant, reduced, and often grading into the phyllaries.....(a). var. *foliosa*.

A. Herbage and involucres more sparsely and more coarsely pubescent; middle and upper leaves linear to narrowly oblanceolate, more than 5 times longer than broad; heads smaller, with involucral diameters mostly less than 8 mm.; heads more-or-less closely subtended by long, narrow, coarsely ciliated, peduncular bracts.....(b). var. *angustifolia*.

(a) **Heterotheca villosa** (Pursh) Shinners var. **foliosa** (Nutt.) Harms, comb. nov. *Chrysopsis foliosa* Nutt., Trans. Am. Phil. Soc., s.2, 7: 216. 1841. *C. mollis* Nutt., Ibid. *C. villosa foliosa* Eaton in King, Geol. Expl.

40th Par. 1871. *C. villosa* var. *foliosa* (Nutt.) Cronq., Bull. Torr. Bot. Club 74: 150. 1947. *Heterotheca foliosa* (Nutt.) Shinners, Field & Lab. 19: 71. 1951.

(b) **Heterotheca villosa** (Pursh) Shinners var. **angustifolia** (Rydb.) Harms, comb. nov. *Chrysopsis augustifolia* Rydb., Bull. Torr. Bot. Club 37: 128–129. 1910. *C. stenophylla* sensu Britt. & Brown, Illustr. Fl. N.E. U.S., ed. 2, 3: 372–5. 1913 [not *C. stenophylla* (Gray) Greene]. *C. villosa* var. *angustifolia* (Rydb.) Cronq., Bull. Torr. Bot. Club. 74: 150. 1947. *Heterotheca angustifolia* (Nutt.) Shinners, Field & Lab. 19: 71. 1951.

4. HETEROTHECA CANESCENS (DC.) Shinners, Field & Lab. 19: 68. 1951. *Aplopappus canescens* DC., Prodr. 5: 349. 1836 [not *Chrysopsis canescens* DC., Ibid., 328]. *Chrysopsis canescens* (DC.) Torr. & Gray, Fl. N. Am. 2: 256. 1843. *C. villosa* (Pursh) Nutt. var. *canescens* (DC.) Gray, Syn. Fl. N. Am. 2: 123. 1884. *C. Berlandieri* Greene, Erythea 2: 96. 1894.

*Heterotheca canescens* represents a fairly consistent, diploid (n=9) species, which is more or less clearly distinguishable from *H. villosa* by its: (1) denser, softer, whiter, appressed-sericeous pubescence in involucres, peduncles, and leaves, (2) never conspicuously bulbous-based, harsh primary pubescence of stems, (3) narrower middle and upper leaves, (4) loose, irregular inflorescence, (5) smaller heads, (6) markedly rhizomatous habit, and (7) reduced size of most quantitative characters, as well as by its chromosome number difference. In Texas (fig. 5) and Oklahoma, the range of *H. canescens* extends somewhat more eastward, but broadly overlaps that of *H. villosa*, and some taxonomic difficulty may be encountered in clearly distinguishing from this species herbarium specimens of certain more canescent, densely strigose-sericeous, narrow-leaved forms of *H. villosa*.

5. HETEROTHECA STENOPHYLLA (Gray) Shinners, Field & Lab. 19: 68. 1951. *Chrysopsis hispida* (Hook.) DC. var. *stenophylla Gray*, Journ. Bost. Nat. Hist. Soc. 6: 223. 1850. *C. villosa* (Pursh) Nutt. var. *stenophylla* (Gray) Gray, Syn. Fl. 1$^2$: 123. 1884. *C. stenophylla* (Gray) Greene, Erythea 2: 96. 1894. *C. scabrifolia* A. Nels., Bot. Gaz. 37: 264. 1904.

Over most of its range, including Texas, *Heterotheca stenophylla* appears to represent a quite distinct, diploid (n=9) species, but some tetraploid (n=18) populations are known from a narrow band along the eastern edge of the species' overall distribution reaching from south-central Kansas south to the Wichita Mountains of south-central Oklahoma (to ?Archer Co., Texas), which hybridize and intergrade somewhat with *H. villosa*. As a result, the tetraploid *H. stenophylla* populations as a whole are usually distinguishable from the diploid populations by the presence of such introgressed characters from *H. villosa* as more pubescent involucres, stems, or leaves, but it seems impossible to assign individual plants to a particular ploidy level on this basis. Thus it appears imprac-

tical to attempt to taxonomically distinguish the tetraploid from the diploid *H. stenophylla* populations despite the presence of an obvious reproductive barrier based upon different ploidy levels. Neither does it seem logical to taxonomically merge *H. stenophylla* with *H. villosa* merely because certain tetraploid populations of the former hybridize more or less extensively with the latter, when most of the *H. stenophylla* taxon is diploid and clearly distinct morphologically and biologically.

6. HETEROTHECA FULCRATA (Greene) Shinners, Field & Lab. 29: 71. 1951. *Chrysopsis fulcrata* Greene, Bull. Torr. Bot. Club 25: 119. 1898. *C. resinolens* A. Nels., Bull. Torr. Bot. Club 28: 232. 1901. *C. cryptocephala* Woot. & Standl., Contr. U. S. Nat. Herb. 16: 179. 1913. *C. senilis* Woot. & Standl., Ibid.

This species is broadly interpreted here to include various, at least semi-distinct races, mostly characteristic of higher elevations in the southern Rocky Mountains and southwestern United States, and extending into the mountains of Trans-Pecos Texas (fig. 5). A chromosome number of n=9 has been reported for this species from Arizona by Solbrig, et al. (1964) and I have also found n=9 plants referred to this species from the Organ Mountains of Dona Ana County, New Mexico (*V. L. Harms 1839*, KANU), Maricopa County, Arizona (*V. L. Harms 1863*, KANU), and the White Mountains of Lincoln County, New Mexico (*V. L. Harms 1801-1*, KANU). Thus, the species is presumably diploid, but most of the Trans-Pecos Texas material differs at least racially from the plants upon which the above chromosome counts were based.

In describing *Chrysopsis fulcrata*, Greene (1898) indicated the type information as: "Collected at various places in the White Mountains and Organ Mountains at elevations of 6000 to 6500 feet *(E. O. Wooton 510, 511, 512)*." The cited specimens include an assortment from several races of a broadly interpreted *H. fulcrata*. From among the syntypes at Greene Herbarium (ND), Shinners (1951) designated the following specimen as the lectotype: "Near Cherokee Bill's spring, White Mountains, alt. 6300 ft., Lincoln Co., New Mexico, Aug. 21, 1897, *E. O. Wooton 511*." This choice causes some confusion since Wooton and Standley (1913, 1915) obviously considered the first cited specimen, *Wooton 510* from the Organ Mountains, as the true type of *C. fulcrata*, and their subsequent descriptions of *C. cryptocephala* and *C. senilis* seem based upon this understanding. *Heterotheca fulcrata* represents a problematic species needing further study. Much of the Trans-Pecos Texas material belongs to a smaller, less glandular, and more pubescent race somewhat similar to the type *Chrysopsis senilis*.

7. **Heterotheca horrida** (Rydb.) Harms, comb. nov. *Chrysopsis canescens* (DC.) Torr. & Gray var. *nana* Gray, Mem. Am. Acad. & Sci. 4; 78. 1849. *C. floribunda* Greene, Pittonia 3: 100. 1896 [not *Heterotheca floribunda* Benth. in Hinds, Bot. Sulph., 24. 1844]. *Chrysopsis horrida*

Rydb., Bull. Torr. Bot. Club 31: 648–9. 1904. *C. compacta* Greene, Leafl. Bot. Obs. & Crit. 1: 150–151. 1905. *C. arida* A. Nels. ex Rydb., Fl. Colo., 340. 1906 (nom. nudum). *C. arida* A. Nels., in Coult. & Nels., New Man. Bot. Rocky Mts., 492. 1909.

This apparently clear-cut, diploid (n=9) species is common at lower elevations in the southern Rocky Mountain region. It has been variously taken as *Chrysopsis hispida* in New Mexico (Wooton & Standley, 1915), as *C. hispida* or *C. viscida* in Arizona (Kearney & Peebles, 1951), as *C. viscida* in Utah (Blake, 1925), and, somewhat curiously, as typical *C. villosa* in Colorado (Harrington, 1954; Weber, 1961). However, the species is not *H. viscida* as the latter is now interpreted (below), and the type of *C. hispida* belongs rather to a common, more northern, tetraploid (n=18) variant of the widespread species, *H. villosa*. The southwestern-centered *H. horrida* extends eastward on the Colorado and Cheyenne Piedmont as far as western Nebraska and eastern Colorado, and on the High Plains as far as eastern New Mexico and Cheyenne County, Oklahoma. Although it is yet not known from Texas, it approaches so closely that its occurrence would not be unexpected, particularly on the high plains of the extreme northwestern Texas Panhandle.

8. HETEROTHECA VISCIDA (Gray) Harms, Rhodora (in press). *Chrysopsis villosa* var. *viscida* Gray, Syn. Fl. 1$^2$: 123. 1884. *C. viscida* (Gray) Greene, Erythea 2:105. 1844.

This apparently rare, high elevation species of southern Arizona, New Mexico, Trans-Pecos Texas, and (?) northern Mexico has seldom been recognized. In describing this entity, Gray (1884) indicated its geographic range as "Utah and Arizona in the mountains" and cited the following specimens, "*Jones, Greene, Pringle, Lemmon.*" These syntypes were checked in the Gray Herbarium, Harvard University, were found to represent a heterogeneous assemblage of forms belonging to three different species. The present disposition of the name *H. viscida* is based upon the following lectotype, personally chosen by the author (Harms, in press-a) from among Asa Gray's syntypes: "clefts of dry ledges, Santa Rita Mountains, Arizona, alt. 7500 ft., May 28, 1881, *C. G. Pringle* (G)." As presently interpreted on the basis of the above lectotype, *H. viscida*, apparently does not extend to either northern Arizona or Utah as was indicated by Gray's original description. Its nearest affinities lie with *H. fulcrata* from which it appears amply distinct. This species represents the entity within the *H. villosa* s. lat. complex which most closely approaches section *Heterotheca* in such foliage characters as broader leaves and abundant stipitate glands. In the Southwest, the epithet *viscida*, has most frequently been misapplied to plants belonging to either *H. horrida* or *H. fulcrata*.

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# TWO NEW SPECIES OF MENTZELIA IN TEXAS

HENRY J. THOMPSON AND JOYCE E. ZAVORTINK[1]

Our current work on a taxonomic monograph of *Mentzelia* section BARTONIA (Loasaceae) has disclosed several new species and pointed out the need for nomenclatorial changes in others. Two new species and one new combination are presented here so that they may be included in our preparation of the Loasaceae for a manual of the vascular plants of Texas by D. S. Correll and M. C. Johnston.

**Mentzelia mexicana** Thompson & Zavortink, sp. nov.

Herba perennis in basi sarmentosa; foliis inferioribus lanceolatis 2–10 cm. longis, 3–12 mm. latis, laciniis obtusis brevibus latitudine atque longitudine aequalibus, supremis similibus deminutis; bracteis linearibus integris; calycum laciniis deltoideis acuminatis 6–8 mm. longis; petalis 10, flavis, plerumque lanceolatis 8 15 mm. longis, 2–5 mm. latis; staminibus 5–10 mm. longis, filamentis externorum paucis ad 1 mm. dilatis; stylis 6–10 mm. longis; capsulis cymbiformibus 5–15 mm. longis; semenibus compressis ovalibus 1.8–2.0 mm. longis, alis ad 1.2 mm. latis, externo laevibus.

Herbaceous perennial; low, compact, rounded, stems much branched from base, 1–3.5 dm. tall, white, pubescent with sparse to more or less numerous pointed hairs and numerous glochidiate hairs at least on younger portions of stem; rosette leaves not known, lower leaves more or less lanceolate, 2–10 cm. long, broad, 3–12 mm. wide, lobes short and blunt, usually 1–3 mm. long, rarely to 7 mm. long, but always about as wide as long, upper leaves similar but smaller, lower surface of leaves numerous pointed and glochidiate hairs, upper surface with more or less curved pointed hairs and sparse to numerous tiny glochidiate hairs, margins with somewhat longer glochidiate hairs; bracts linear and entire, at base of or just below capsule; flowers produced March through September, time of opening of the flower not known; calyx lobes triangular-acuminate, 6–8 mm. long; petals 10, yellow, 8–15 mm. long, 2 5 mm. wide, narrowly ovate to lanceolate, tip acute, claw rather short, usually less than ¼ length of petal; stamens numerous, graded from 5 (inner) to 10 (outer) mm. long, filaments mostly narrow, a few outer filaments dilated to 1 mm. wide; styles 6–10 mm. long; capsules cup-shaped, 5–15 mm. long, 5–10 mm. wide; seeds compressed, oval, 1.8–2.0 mm. long with a wing to 1.2 mm. wide, surface granulate, very light tan to white; chromosome number not known. Holotype: near La Rosa, Coahuila, Mexico, *Forrest Shreve & E. R. Tinkham 9908* (GH; isotypes, ARIZ, MICH).

*Mentzelia mexicana* is most similar to *M. multiflora*, to which herbarium specimens have been referred, but differs from it in the combina-

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tion of low, compact branching habit, granulate seeds with a broad wing, cup-shaped capsules, and small leaves with a broad rachis. It is commonly found on clay or rocky soils from 2000 to 4000 feet in elevation, in extreme southern Texas (Brewster County), Coahuila and extreme eastern Chihuahua, Mexico; *Mentzelia multiflora* occurs on much sandier soils. *Mentzelia mexicana* occurs in the United States only in the vicinity of Big Bend National Park in Texas, in the extreme southern portion, where it is found on the heavier soils.

TEXAS: Brewster Co., 10 mi. N of Terlingua, *Omar E. Sperry T1244* (UC); mouth of Terlingua Creek, *Eula Whitehouse 19621* (SMU); Hot Springs, *Sperry 1746* (GH, US); 1 mi. W. of Glen Springs, Big Bend Park, *R. Rose-Innes & B. Moon 1198* (GH); mouth of Santa Elena Canyon near Rio Grande River, *Reed C. Rollins & T. S. Chambers 2769* (GH); 3 mi. W. of Terlingua, *D. S. Correll 33883* (LL); Hot Springs, *Sperry 1679* (US).

MEXICO: Chihuahua, 11½ mi. S. of Ojinaga along road from Ojinaga to Castillon, Coahuila, *I. M. Johnston 8037* (GH). Coahuila, several miles W. of Buena-Vista, *Johnston 8306* (GH); Cerro de Cypriano, *C. A. Purpus 4535* (GH, UC, US); between Vibora & Matrimonio Viejo, *Johnston 9349* (GH); Saltillo, *Edward Palmer 45* (GH, MICH, NY, UC, US); Saltillo, *Palmer 2105* (GH); Saltillo, *Palmer 350* (US); 45 mi. N. of Saltillo, Rte. 75, *D. S. Correll & I. M. Johnston 21315* (LL); Saltillo, *Bro. Nil 96* (US); near Divasadero, 10 mi. W. of Cuatro Cienegas, *Johnston 8863* (GH); San Jose, *I. M. Johnston & C. H. Muller 997* (GH); Matrimonio Viejo, *Johnston 9368* (GH); 8 mi. SW. of La Rosa, *Correll & Johnston 21408* (LL); 16 mi. S. of Laguna del Rey, *Johnston 7811* (GH); Buenavista, *Josiah Gregg 50* (GH); Hermanas, 40 km. NE. from Monclova, *E. G. Marsh 1570* (GH); near Norias, 20 mi. N. of Esmeralda on road from San Jose, *Johnston & Muller 348* (GH).

**Mentzelia saxicola** Thompson & Zavortink, sp. nov.

Herba perennis in basi sarmentosa; foliis inferioribus 2–6 cm. longis, linearibus integris vel breviter et acute lobatis, superioribus similibus, brevioribus; bracteis linearibus integris; calycum lobis deltoideo-acuminatis 5–8 mm. longis; petalis 10, flavis, 9–12 mm. longis 2–4 mm. latis, ovatis, externorum apicibus rotundatis, interiorum acutioribus; staminum numerosorum interioribus 4 mm. externorum 8 mm. longis; filamentorum paucis ad 1.8 mm. dilatatis; stylis 6–8 mm. longis; capsulis cymbiformibus 7–10 mm. longis; semenibus compressis, ovalibus 1.5–2.0 mm. longis, alis ad 1 mm. latis, externis laevibus interdum tamen minusve asperis.

Herbaceous perennial; stems 1–3 dm. tall, low, compact, rounded, much branched from base, white, moderately pubescent with small glochidiate hairs and sparsely scattered pointed hairs; rosette leaves not known, lower leaves linear, 2–6 cm. long, 1–3 mm. wide, entire or with very short, narrow, pointed lobes, upper leaves similar but smaller, lower surface of leaves sparsely pubescent with scattered glochidiate hairs, upper surface sparsely pubescent with large curved pointed hairs, margins with large glochidiate hairs; bracts linear and entire, at base of or just below capsule; flowering period from July to October, flowers opening in late after-

noon; calyx lobes triangular-acuminate, 5–8 mm. long; petals 10, yellow, 9–12 mm. long, 2–4 mm. wide, ovate to narrowly ovate, the 5 outer petals usually with rounded tips, the inner 5 with more acute tips, claw short, about ¼ length of petal; stamens numerous, grading from 4 (inner) to 8 (outer) mm. long, most stamens with narrow filaments, the outermost filaments dilated to 1.8 mm. wide; styles 6–8 mm. long; capsules cup-shaped, 7–10 mm. long; seeds compressed, oval, 1.5 2.0 mm. long with a wing to 1 mm. wide, surface very slightly colliculate to roughly granulate; chromosome number n=10. Holotype: Texas, 3 mi. W. of Van Horn on US 10, 100 yards west of the Hudspeth-Culberson county line, August 17, 1964, *P. R. Atsatt 500* (US 2567665, chromosome voucher n=10, isotype LA).

*Mentzelia saxicola* has been identified in the herbaria as *M. humilis*, but can be distinguished from that species by its broader, deeper yellow petals, broader filaments, and the more minutely granulate (smoother) surface of the seeds. It is most similar to *M. mexicana*, but differs from it in the smoother appearing seed surface, narrower filaments and broad leaf blade of the latter. The two species are not known to occur in the same area. *Mentzelia saxicola* is found on gypsum soils and rocky hillsides in Hudspeth and El Paso counties, Texas, and eastern Chihuahua, Mexico. In one area of Hudspeth County, 3 mi. west of Van Horn on a roadcut of Highway 10, *M. saxicola*, n=10 *(Atsatt 500)* is found growing with *M. multiflora*, n=9 *(Atsatt 507)*. The former species is mostly confined to the vertically stratified rock substrate while *M. multiflora* is found on the sandier flats. The two species meet at a rubble heap at the west end of the roadcut, and the morphologically intermediate hybrids are confined to this area. Two hybrid specimens, *Atsatt 500–7* and *500–8*, were examined cytologically and found to have a chromosome number of 2n=19, less than 5% normal pollen, and set no seed. The two species can easily be differentiated in the field by the much more linear, narrower leaves, narrower petals, minutely granulate seed surface, and low compact habit of *M. saxicola*.

TEXAS: El Paso Co., W. edge of El Paso, "La Frontera," *D. S. Correll & Reed C. Rollins 23861* (LL). Hudspeth Co., 2 mi. NE. Indian Hot Springs, *B. L. Turner, B. H. Warnock & H. B. Parks 401* (GH, SMU); upper canyon of Rio Grande below Indian Hot Springs, *U. T. Waterfall 6215* (GH); 15 mi. S. of Allamore in basin of Quitman Arroyo, *Waterfall 4885* (MO, GH); Malone Mts., Panther Hill-Fox Hill area, *Waterfall 5829* (GH); E. of Finley, *Waterfall 5021* (CAS, GH, SMU, TEX); 6 mi. W. of Van Horn, *Waterfall 4038* (ARIZ, GH); 3½ mi. NE. of Indian Hot Springs, *Waterfall 4842* (GH, MO); N. end of Malone Mts. near Finley, *D. S. Correll & I. M. Johnston 20357* (LL); SE. base of Malone Mts., *Correll & Johnston 19294* (LL); 10 mi. SE. of McNary, Jct. of Rt. 34 and 80, *D. S. Correll 26610* (LL); SE. of Malone Mts., *Waterfall 5801* (GH).

MEXICO: Chihuahua, 3 mi. S. of Progreso along road through Rancho San Jose del Progreso just W. of Coahuilan boundary, *Robert M. Stewart 2317* (GH); Rancho San Jose del Progreso, ranchhouse, *Stewart 2327* (GH).

**Mentzelia Reverchonii** (Urban & Gilg) Thompson & Zavortink, comb. nov.

*Mentzelia pumila* Torrey & Gray var. *Reverchonii* Urban & Gilg, Nova Acta Akad. Leop.-Carol. 76: 94. 1900. Lectotype: Callahan County, Texas, May 1882, *Julien Reverchon 322* (US 1339159).

Urban and Gilg did not designate a type specimen in their original description; the above specimen was one of several cited and annotated by them, and is selected as the lectotype.

*Mentzelia Reverchonii* is found on gravelly and limestone soils, occasionally on sandy soils, from southeastern Colorado south through southwestern Kansas and Oklahoma, eastern New Mexico, central and western Texas into Coahuila, Mexico. This species is very distinctive, characterized by very broad-winged, granulate seeds, broad-based, clasping upper leaves, yellow petals and numerous narrow staminodes. It has been incorrectly identified in the herbaria as *M. nuda* (which has white petals, leaves never clasping, and seeds with a colliculate surface) or *M. Wrightii* (a synonym of *M. albescens*, which has smaller flowers and much shorter calyx lobes). It was recognized by Urban and Gilg (1900) who named it var. *Reverchonii* which they placed under their very broadly defined *M. pumila* Nutt. ex. Torrey & Gray. We consider this entity to be a distinct species and provide a name for it by raising Urban and Gilg's varietal epithet to specific status.

# SOME ADDITIONS AND CORRECTIONS TO THE FLORA OF TEXAS—V

Donovan S. Correll

This is the last of a series of papers that has been published in the course of Marshall C. Johnston's and my work on the preparation of a manual of the vascular plants of Texas[1]. This project was supported, in part, by a grant from National Science Foundation (GB-3138). All of the specimens cited, unless otherwise noted, are in the Lundell Herbarium (LL) of Texas Research Foundation. I wish to acknowledge the help of my wife, Dr. Helen B. Correll, in the preparation of this paper.

Lilium philadelphicum L. var. andinum (Nutt.) Ker, Bot. 7: *tab. 594.* 1822.

*Lilium umbellatum* Pursh, Fl. Am. Sept. 1: 229. 1814.

TEXAS: Culberson County, in South McKittrick Canyon, Guadalupe Mts., about 1 mile beyond Hunter Lodge, June 6, 1966, *Frederick R. Gehlbach s.n.* (BAYLU; Herb Carlsbad Caverns Nat. Park).

This is the first report of this northern species in Texas. It has heretofore been known to occur only as far south as northern New Mexico and Arizona. A second species, *L. Michauxii* Poir., occurs in the forests of east Texas.

Malaxis Ehrenbergii (Reichb. f.) O. Ktze., Rev. Gen. Pl., pt. 2: 673. 1891.

TEXAS: Brewster County, Boot Canyon, Chisos Mts., Big Bend National Park, August 12, 1967, *Mr. & Mrs. Paul D. Whitson 302* (SRSC), also August, 1964 (BAYLU).

Although this species has been known for some time from New Mexico, Arizona and Chihuahua, this is the first report of its occurrence in Texas. According to Mr. Whitson, who kindly referred to me the report of this species in Texas, it is very rare in the localities which he has found in the Chisos Mts.

**Cerastium Clawsonii** Correll, sp. nov.

Herba ut videtur multis caulibus erectis e radice tenui; caules simplices vel prope basin sparsim ramosi, certe sulcati et in cristis ciliati; folia sessilia, glabra, subcoriacea, opposita, erecta et plus minusve imbricata de caulibus, linearia vel anguste lanceolata, arista terminali longa, 5–8 mm. longa, 1 mm. lata, nervo carinato centrali dorsali in caule decurrenti; flores solitarii ad apicem caulium et ramorum, pedunculis crassis sulcatis; sepala elliptica vel elliptico-lanceolata, ad aristam rigidam longam abrupte contracta, marginibus hyalinis latis ciliatis, circa 8 mm. longa et 2 mm. lata; petala late cuneato-suborbiculata vel suborbiculato-obovata,

[1]Some Additions and Corrections to the Flora of Texas. Wrightia 3: 126–140. 1965; Some Additions and Corrections to the Flora of Texas—II. Brittonia 18: 306–310. 1966; also III. Rhodora 68: 420–428. 1966 and IV. Madroño 19: 187–192. 1968.

ad apicem late rotundatum leviter emarginata, concava, sepalis breviora; styli 5, fere per totam longitudinem connati, ad 4 mm. longi, stigmatibus capitatis; stamina 5, filamentis gracilibus ad 4 mm. longis; antherae lineari-oblongae, basi sagittatae, circa 1.5 mm. longae; capsula ovoidea (immatura).

Plant with numerous erect stems from a slender root, apparently annual; stems simple or sparsely branched near base, noticeably grooved and ciliated on the ridges; leaves sessile, glabrous, subcoriaceous, opposite, erect and more or less imbricate up the stems, linear to linear-lanceolate, terminated by a long awn, 5–8 mm. long, 1 mm. wide or less, with a keeled central dorsal nerve that is decurrent on the stem; flowers solitary at apex of stems and branches, on rather stout grooved peduncles; sepals elliptic to elliptic-lanceolate, abruptly tapering to a long rigid awn, the broad hyaline margins ciliate, about 8 mm. long and 2 mm. wide; petals broadly cuneate-suborbicular to suborbicular-obovate, slightly emarginate at the broadly rounded apex, concave, shorter than the sepals; styles 5, united for most of their length, up to 4 mm. long, the stigmas capitate; stamens 5, the slender filaments up to 4 mm. long; anthers linear-oblong, sagittate at base, about 1.5 mm. long; capsule ovoid (immature).

TEXAS: Brewster County, McIntyre Ranch, 3 miles south of Alpine, April 9, 1929, *A. B. Clawson 29-173* (NA No. 305776, holotype).

Because of its outward appearance one might consider this plant to be an *Arenaria* if it were not for its five styles, and I so considered this incongruous possibility until my colleague, Lyman B. Smith, suggested the present genus. It is totally unrelated to all other members of this genus in Texas.

HACKELIA PINETORUM (Greene) I. M. Johnst., Contrib. Gray Herb. n.s. 68: 45. 1923.

*Lappula pinetorum* Greene, Pittonia 2: 182. 1891.
*Echinospermum pinetorum* Greene in A. Gray, Proc. Am. Acad. 17: 224. 1872.

TEXAS: Jeff Davis County, on sheltered ledge near summit of Mt. Livermore, Davis Mts., flowers blue, September 30, 1966, *D. S. Correll 33730.*

This species is new to Texas. It differs from *H. floribunda* (Lehm.) I. M. Johnst., also found in Texas, in its noticeably petiolate elliptic cauline leaves and the usually few simple or sparsely branched elongate spreading branches that are rarely aggregated into a conspicuously cylindric inflorescence. The plants also are more slender and spreading than in the commonly strictly erect *H. floribunda*. The marginal appendages of the nutlets of the two species are quite similar but the dorsal surface of the nutlets of *H. pinetorum* always has one or several minute glochidiate appendages whereas the dorsal surface of the nutlets of *H. floribunda* is characteristically smooth.

This species is now known from west Texas, New Mexico, Arizona and Chihuahua.

LEONURUS SIBIRICUS L., Sp. Pl. 584. 1753.

TEXAS: Red River County, in low woods along Red River, along route #37, north of Negley, flowers pink, July 27, 1967, *D. S. Correll & R. S. Mitchell 34395*.

This is the first report of this Old World species in Texas. The plant forms an extensive colony where it was collected in Red River County. It is also known to occur in adjacent Louisiana and Oklahoma.

**Monarda maritima** (Cory) Correll, comb. nov.

*M. punctata* L. var. *maritima* Cory, Field & Lab. 17: 52. 1949.

This rare and extremely limited species occurs in deep sand along the coast in southern Texas. It is one of the most distinctive species of *Monarda* that occurs in the state. With its white flowers and reddish or purplish tinged floral bracts, and densely leafy and strongly pilose stems, it is a shrub of potential ornamental value. It is strikingly different from the rather drab perennial herb to which it was originally referred. Apparently, its nearest relative is the smaller shrub, *M. fruticulosa* Epling, that is endemic to the Rio Grande Plains of southern Texas.

SIDERITIS LANATA L., Amoen. Acad. 4: 459. 1759.

TEXAS: Llano County, on sandy bank about 2 miles northeast of Enchanted Rock near "Kini" Creek, flowers white with black markings, May 15, 1966, *D. S. Correll & Helen B. Correll 32843* (LL, US).

As far as I know, this is the first report of the occurrence of this Asia Minor species in the United States. In the Texas locality quite a few plants were observed scattered along a bank in a mesquite-thicket association. The globose, densely pubescent plants with their small but conspicuous black and white flowers are rather striking. I am indebted to Lyman B. Smith for the determination of this species.

NICOTIANA PLUMBAGINIFOLIA Viviani, Elench. Pl. Hort. Dinegro, 26, *tab. 5*. 1802.

TEXAS: Cameron County, along a resaca in Brownsville, coarse plant 4 ft. high, flowers white-lavender, March 5, 1968, *D. S. Correll 35561*.

This is the first report of this species in Texas, if not the United States. It has long been known to occur in damp ground around Matamoras just across the Rio Grande and its occurrence in Texas was not unexpected. It is related to *N. longiflora* Cav. but its flowers are only 25–35 mm. long while that species has flowers more than 40 mm. long.

**Symphoricarpos guadalupensis** Correll, sp. nov.

Frutex omnino glaber; caules graciles cortice tenuiter fibroso-rupta; ramunculi ferruginei; folia, 1.5 mm. longe petiolata, ovalia vel elliptica ad 15 mm. longa et 9 mm. lata, apice rotundo-apiculata, margine integro vel dentibus grossis paucis vel lobulis supra medium; pedicelli crassi, circa 1.5 mm. longi; bractea florales ovato-concavae, circa 1.5 mm. longae; calyx 1.8 mm. longus, lobis brevibus late rotundatis; corolla campanulata 3–4 mm. longa, lobis late rotundatis concavis; fructus ignotus.

Shrub, entirely glabrous; stems slender, with the bark thinly fibrous-shredded, the twigs reddish brown; leaves with petioles about 1.5 mm. long, oval to elliptic, up to 15 mm. long and 9 mm. wide, rounded-apiculate at apex, the margins entire or with few coarse teeth or lobules above the middle; pedicels thick, about 1.5 mm. long; floral bracts ovate-concave, about 1.5 mm. long; calyx 1.8 mm. long, the short lobes broadly rounded; corolla campanulate, 3–4 mm. long, the broadly rounded lobes concave; fruit unknown.

TEXAS: Culberson County, limestone soil, South McKittrick Canyon top of Guadalupe Mts., J. C. Hunter Ranch, alt. 8,000 ft., Sept. 5, 1954, *Barton H. Warnock 12078* p.p. (LL, holotype).

A flowering branch of this species was collected along with a branch of *S. Palmeri* Jones with "large white fruits." Apparently the two shrubs grew either together or in proximity. The completely glabrous and later flowering *S. guadalupensis* contrasts markedly with the hairy and earlier flowering *S. Palmeri.*

AUREOLARIA PECTINATA (Nutt.) Pennell, Bull. Torr. Bot. Club 40: 414. 1913.

*Gerardia pectinata* (Nutt.) Benth. in Hook., Comp. Bot. Mag. 1: 206. 1835 6.

TEXAS: Jasper County, sandy soil of pine-scrub oak, grassland, 17 miles north of Jasper, October 20, 1963, *D. S. Correll 28577.* Tyler County, frequent in open places in sandy woods, 6 miles south of Woodville, October 1, 1945, *V. L. Cory 49867* (SMU, US).

This species has apparently never been reported from Texas.

AUREOLARIA FLAVA (L.) Farw., Rep. Mich. Acad. Sci. 20: 188. 1918.

*Gerardia flava* L., Sp. Pl. 610. 1753.

TEXAS: Angelina County, open wooded slope, between Bouton Lake and Boykin Springs, Angelina National Forest, August 18, 1966, *D. S. Correll & Helen B. Correll 33478.* Hardin County, along bank of stream above Pine Island Bayou, near Sour Lake-Beaumont Road, July 19, 1945, *C. L. Lundell 14114.* Orange County, edge of woods, about 1.5 miles east of Vidor, along route 12, June 26, 1967, *D. S. Correll 34238.*

The above are the only specimens I have seen from Texas. The eastern var. *reticulata* (Raf.) Cory was included in Cory and Parks *Catalogue of the Flora of Texas,* p. 93. 1937 under *Gerardia flava* but no material has been seen. The species was subsequently omitted from Gould's *Texas Plants,* published in 1962.

# A NEW SPECIES OF BRAZORIA (LABIATAE) FROM EAST TEXAS

Cyrus Longworth Lundell

Since 1959 a population of *Brazoria* around Centerville in Leon County has been under observation. The species was tentatively referred to *B. truncata* (Benth.) Engelm. & A. Gray. During the favorable spring season of 1968, populations of the latter were studied in the field in Bastrop County where a collection of fully developed plants was made near Upton on sandy soils of the area, *C. L. Lundell 18495* (LL). *B. truncata* obviously differs from the Leon County species, as indicated in the key which follows. A new species is represented, and its relationship appears to be closer to *B. arenaria* Lundell than *B. truncata*.

**Brazoria pulcherrima** Lundell, sp. nov.

Herba usque ad 60 cm. alta, ramulis pubescentibus; folia membranacea, spatulata, usque ad 13 cm. longa, 2.5 cm. lata, crenato-denticulata, apice acutiuscula vel obtusiuscula, supra basi pubescentia, demum glabra; inflorescentiae racemoso-paniculatae, laxiflorae, usque ad 35 cm. longae, hirtellae; pedicelli usque ad 2 mm. longi; calyx campanulatus, ca. 6 mm. longus, breviter pubescens; corolla usque ad 2.2 cm. longa; cocci hirtelli, ca. 1.8 mm. longi.

Annual, up to 60 cm. high, stems quadrangular, the angles rounded, simple or branched near base, pubescent with short hairs; leaves membranaceous, the basal withering early, with 5 to 8 pairs of stem leaves below the inflorescence; cauline leaves spatulate, up to 13 cm. long, 2.5 cm. wide, rather remotely crenate-denticulate above middle, apex acutish or obtusish, the upper leaves winged at base, the lower petiolate, short pubescent above at base, otherwise glabrous; racemes subspicate, panicled, interrupted, remotely flowered, up to 35 cm. long, the rachis pubescent with short glandular and non-glandular hairs; bracts ovate, 6 mm. long, subulate-acuminate, conspicuously ciliate with long hairs; pedicels up to 2 mm. long, slender; calyx campanulate, not bearded, short pubescent with glandular and eglandular hairs, about 6 mm. long, becoming 8 mm. long in fruit, the 3 lobes of upper lip truncate-rounded, each lobe subulate-apiculate, the 2 lobes of lower lip each with 2–5 subulate teeth, the lateral teeth often reduced, the lobes overlapping medially to close sinus; corolla lavender with maculate yellow throat, sparsely pubescent along the back, up to 2.2 cm. long, the tube dilated upward, the upper lip with 2 rounded conspicuously toothed lobes, the teeth rounded, the lower lip with 3 smaller emarginate lobes, the upper lip villous at base within throat; cocci 3-angled, about 1.8 mm. long, hirtellous.

TEXAS: Leon County, off U. S. highway 75, about 1 mile south of Centerville, along sandy roadside, May 26, 1959, *C. L. Lundell 16030* (LL, type), annual, corolla lavender, maculate.

Other collections from the vicinity of Centerville are *D. S. Correll 16421* (LL) and *D. S. Correll, I. M. Johnston & G. Edwin 22391* (LL).

The genus is endemic to Texas and Oklahoma. The four species may be separated as follows:

Stems glabrous below inflorescence; corolla 9–14 mm. long; plant of heavy clayey soils. . . . . *B. scutellarioides* Engelm. & Gray.

Stems pubescent or hispidulous to base; corolla 13–28 mm. long; plant of light sandy soils.

Pubescence of inflorescence of long simple hairs up to 2 mm. long, the calyx conspicuously bearded with long hairs; flowers in short dense subspicate racemes. . . . . *B. truncata* (Benth.) Engelm. & Gray.

Pubescence of inflorescence of short hairs, the calyx not bearded; flowers in elongated open interrupted subspicate racemes.

Stem leaves mainly at base, with 3 to 5 pairs of stem leaves below inflorescence, the upper reduced to clasping bracts, the basal leaves persistent; middle calyx lobe of upper lip rounded and entire, not subulate-apiculate, the 2 lobes of lower lip not overlapping, the sinus open. . . . . *B. arenaria* Lundell.

Stem leaves at base withering early, not persistent; 5 to 8 pairs of stem leaves below inflorescence, large and spatulate, not reduced above to clasping bracts; middle calyx lobe of upper lip truncate-rounded and subulate-apiculate, the 2 lobes of lower lip overlapping, the sinus closed. . . . . *B. pulcherrima* Lundell.

# STUDIES OF TROPICAL AMERICAN PLANTS—IV

Cyrus Longworth Lundell

The rain forest at the base of the Yucatan Peninsula remains very poorly known, and exploration of the area continues to yield additions to the flora including undescribed species. The same is true of adjacent mountains of Alta Verapaz, El Quiche and Chiapas. Not in a hundred years will the rich flora be exhausted by plant collectors.

In this fourth paper of the series, most of the novelties and new records from the Maya Area are from collections of the late Percy H. Gentle, Elias Contreras, Eizi Matuda, Dr. George R. Proctor and the writer. Over ten thousand numbers of these collectors remain to be studied and numerous other additions to the flora should be found as identification work proceeds.

Although my monograph of the genus *Parathesis* was completed and published only recently (*The Genus Parathesis of the Myrsinaceae*, Contributions from Texas Research Foundation, Vol. 5. 1966), another striking local endemic was recently found in Oaxaca. Further additions to this genus may be expected as exploration intensifies in Middle America. In the continuation of my studies of the Myrsinaceae in preparation of the treatment of the family for the *Flora of Panama*, eight additional species of *Ardisia* are described from Panama and adjacent areas.

**Aniba parvissima** Lundell, sp. nov. — Arbor parva, ca. 6 m. alta, 5 cm. diam., ramulis tenuis, angulatis, sulcatis, sparse pubescentibus; folia alternata, parva, petiolata, petiolo 1.5–3.5 mm. longo; lamina coriacea, glabra, supra lucida, lanceolata vel oblongo-lanceolata, 1.5–5 (7) cm. longa, 0.7–1.8 cm. lata, basi acuta, apice acuminata, acumine obtuso, utrinque reticulato-venosa; inflorescentia anguste paniculata, 2–5 cm. longa, longe pedunculata, pauciflora, sparse pubescens; pedicelli 1–2.5 mm. longi; flores ca. 2 mm. longi, lobis oblongis, crassis, sparse adpresse pubescentibus; stamina 9, glabra; staminodia 3, parva; ovarium glabrum.

GUATEMALA: Dept. Peten, La Cumbre, on top of rocky hill, west of km. 139 of Cadenas Road, Sept. 23, 1966, *Elias Contreras 6204* (LL, type), tree, about 20 ft. high, 2 in. diam., flowers yellowish, "*laurel.*"

A fruiting collection, *Contreras 6203* (LL), was collected on the same hill. The shallow cupule has a thin simple margin, and the fruits are ellipsoid, about 1.3 cm. long.

The genus *Aniba* is new to the Guatemalan flora. *A. parvissima* is notable among the local Lauraceae for its small coriaceous leaves which are clustered at the ends of the slender branchlets. The anthers, biglandular at base, are two-celled. The style is short and no enlargement of the stigma is evident.

**Licaria oblongifolia** Lundell, sp. nov. — Arbor parva, ramulis crassis, striatis, minute adpresse puberulis, glabratis; folia coriacea, glabra, petiolata, petiolo crasso, 1.5–1.7 cm. longo; lamina oblonga vel lanceolato-oblonga, usque ad 28 cm. longa, 8.5 cm. lata, apice acuminata, acumine acutiusculo vel obtuso, basi acuta, supra lucida et sublaevis, subtus venosa et areolata; infructescentiae 3 cm. longae, minute adpresse puberulae; pedicelli fructiferi subnulli, crassi; bacca laevis, ellipsoideo-ovoidea, ca. 3 cm. longa, 1.5 cm. diam.; cupula verrucosa, campanulata, ca. 1.7 cm. alta, 2.5–3.3 cm. diam., 1.1 cm. profunda, margine duplice, exteriore rugoso, pannoso, 2–5 mm. lato, interiore erecto, ca. 2 cm. diam., integro, ca. 1 mm. alto.

GUATEMALA: Dept. Peten, Dolores, between km. 85/86, west of Machaquila Road, in *bajo*, Sept. 20, 1961, *Elias Contreras 2937* (LL, type), small tree, 2 in. diam., 15 ft. high, fruit green, *"laurel."*

I originally referred this collection to *L. capitata* (Schl. & Cham.) Kosterm. on the basis of its essentially sessile fruits. It differs notably in its much larger oblong leaves with 10 to 12 pairs of prominent lateral veins, large verrucose cupule with thick spreading irregular outer margin, shallow inner margin, and large fruits. Its affinity is probably with *L. excelsa* Kosterm. and *L. glaberrima* (Lundell) Allen, both of which may be separated immediately by their glabrous branchlets.

**Licaria reclinata** Lundell, sp. nov. — Arbor parva, ramulis gracilibus, minute strigillosis, demum glabratis; folia chartacea, glabra, opaca, longe petiolata, petiolo 5–14 mm. longo; lamina oblanceolata vel oblanceolato-oblonga, apice acuminata, basi acuta vel subcuneata, subtus minute subareolata, supra laevis; inflorescentia novella strigillosa, terminalis vel axillaris, paniculata, usque ad 9 cm. longa; flores ignoti; bacca laevis, ellipsoideo-ovoidea, usque 2 cm. longa, 1.1 cm. diam., apiculata, cupula lignosa, 7–8 mm. alta, usque ad 14 mm. diam., ca. 4–5 mm. profunda, margine duplice, exteriore reclinato, rugoso, 2–3 mm. lato, interiore erecto, integro, 9–11 mm. diam., 1 mm. alto; pedicelli fructiferi crassi, obconici, usque ad 6 mm. longi.

GUATEMALA: Dept. Peten, Laguna Petexbatun, in high forest on the peninsula, April 2, 1964, *C. L. Lundell 18178* (LL, type), tree, 35 ft. high, *"laurel."*

Although I previously referred this collection to *L. triandra* (Sw.) Kosterm. (Phytologia 12: 243. 1965), it appears to represent a taxon amply distinct from that West Indian species. The slender 4 to 6 pairs of strongly ascending lateral veins and the narrow leaves widest above the middle, together with features of the cupule well-mark *L. reclinata*. *L. coriacea* (Lundell) Kosterm. has similar leaves, but widest below the middle, and a distinctive cupule. Flowers are needed to clarify relationships.

**Licaria urceolata** Lundell, sp. nov. – Arbor parva, ramulis gracilibus, glabris; folia alternata, longe petiolata, petiolo 6–15 mm. longo; lamina chartacea, crispata, glabra, lanceolata vel oblongo-lanceolata, 5.5–12.5 cm. longa, 1.2–4 cm. lata, apice acuminata, acumine obtusiusculo, basi acuta; inflorescentia pauciflora, axillaris, gracilis, 1.5–4.5 cm. longa, glabra; stamina fertilia 3, bilocularia, basi pubescentia; staminodia stipitata, parva, pubescentia; ovarium glabrum; cupula urceolata, usque 1.3 cm. alta, apice 1–1.3 cm. diam., margine obscure duplice; pedicelli fructiferi crassi, 5–10 mm. longi.

GUATEMALA: Dept. Peten, Cadenas, in low forest on a rocky hill east of km. 169/170 of the Poptun Road, Aug. 19, 1966, *Elias Contreras 6005* (LL, type), small tree, 45 ft. high, 6 in. diam.

Except for ciliate leaf buds and the pubescence of the androecium, *L. urceolata* is completely glabrous. The type is an immature fruiting specimen, but from dried flowers persisting on undeveloped fruits, it has been possible to establish the generic position of the species. The calyx lobes in these dried flowers are broadly ovate, the inner three much reduced. There are three large 2-celled fertile stamens, appearing sessile, which are pubescent at base.

The cupule of the immature fruit is urceolate with the margin flaring slightly and quite thin. The margin appears simple, but it is obscurely double.

The areolate leaves with more or less crispate margins suggest a relationship to *L. misantlae* (Brandeg.) Kosterm.

**Nectandra colorata** Lundell, sp. nov. – Arbor, ramulis crassiusculis, minutissime et adpresse tomentellis; folia colorata, petiolata, petiolo 0.8–1.3 cm. longo; lamina subcoriacea, oblongo-elliptica vel lanceolata, 9–19 cm. longa, 3.2–7 cm. lata, basi acuta, apice subabrupte caudato-acuminata, acumine obtusiusculo, novella utrinque strigillosa, glabrata; inflorescentia axillaris vel terminalis, parva, paniculata, 2.5–7 cm. longa, minute adpresse pubescentia; flores minutissime tomentelli; pedicelli usque 2.5 mm. longi; calycis tubus parvus, lobis oblongis vel oblanceolatis, ca. 2.5 mm. longis, minute tomentellis; filamenta crassa, pubescentia; antherae parvae, ca. 0.3 mm. longae, emarginatae; staminodia 3, stipitata, parva, pubescentia; ovarium glabrum; stigma discoidea.

GUATEMALA: Dept. Peten, 1 km. NW of Cadenas, in high forest bordering Rio Sarstun, Aug. 10, 1967, *Elias Contreras 6999* (LL, type), tree, 40 ft. high, 6 in. diam., flowers white, *"laurel."*

The specimens dry with a distinctive reddish-brown hue, whence the name. *N. colorata* has leaves recurved and decurrent at base, costa and 5 or 6 pairs of lateral veins impressed above and prominent beneath, and

small axillary and terminal panicles with minute brownish indument. The calyx is lobed almost to the base, and the lobes are deciduous early. The minute anthers are subquadrangular.

The species appears to have affinity to *N. Skutchii* Allen, known to me only from the original description.

**Coccoloba oligocarpa** Lundell, sp. nov. — Arbor, ca. 12 m. alta, 15 cm. diam., ut videtur omnino glabra; ramuli crassiusculi; folia petiolata, petiolo 1–1.8 cm. longo; lamina subcoriacea, lanceolata vel oblongo-lanceolata, 6.5–13.5 cm. longa, 2.3–5.3 cm. lata, apice attenuata, acuminata vel subcaudato-acuminata, basi acuta vel obtusiuscula vel rotundata, nerviis primariis 8–12 adscendentibus; inflorescentiae terminales, racemosae, 2–5 cm. longae, rachidibus glabris, nodulis unifloris; bracteae et ochreolae minutae, ca. 0.3 mm. longae, glabrae; pedicelli fructiferi crassi, 3.5–5 mm. longi; fructus subglobosus vel ovoideus, ca. 1 cm. diam., apice obtuse apiculatus.

GUATEMALA: Dept. Peten, Guayacan, La Pita, on top of rocky hill, in low forest, 2 km. south, Jan. 4, 1968, *Elias Contreras 7399* (LL; type), tree, 40 ft. high, 6 in. diam.

The glabrous stipules are closely sheathing, up to 1 cm. long with the petiole basal. In the fruiting specimens I find no trace of pubescence on even the leaf buds. The fine primary veins, up to 12 pairs, are unevenly developed and spaced, not prominent as in *C. diversifolia* Jacq., the species to which *C. oligocarpa* appears to have affinity.

I reluctantly describe another species in this group, but in aspect *C. oligocarpa* differs markedly. The narrow leaves are sharply acuminate and broadest below the middle. These characteristics, combined with the fine inconspicuous more numerous veins, well-mark the species among the populations of the Maya Area.

**Bunchosia petenensis** Lundell, sp. nov. — Planta scandens; ramuli crassi, hirsuti; folia opposita, hirsuta, petiolata, petiolo 1–1.5 cm. longo; lamina membranacea, elliptico-oblonga, lanceolata vel oblanceolata, 30–35 cm. longa, 11–14 cm. lata, apice acuminata vel subabrupte caudato-acuminata, basi anguste rotundata et emarginata; inflorescentia axillaris, racemosa, 7–10.5 cm. longa, pauciflora, hirsuta; pedicelli usque ad 1.2 cm. longi; calyx glandulosus; sepala crassa, ovata, ca. 3 mm. longa, extus adpresse hirsuta, intus glabra; petala ca. 11 mm. longa, glanduloso-marginata; stamina 10; filamenta glabra, supra libera; antherae basi sagittatae, apice rotundatae; stigma subcapitata, 3-lobata; ovarium glabrum.

GUATEMALA: Dept. Peten, Cadenas, in swamp, 500 m. west of km. 166/167 of the Poptun-Cadenas Road, Aug. 11, 1966, *Elias Contreras 5951* (LL, type), vine, flowers yellow.

In its glabrous ovary and style, *B. petenensis* may be separated immediately from *B. pilosa* H.B.K., to which it appears to be related. The filaments united to above the middle, the united styles with a disk-like 3-lobed stigma, and the dense pubescence of stems and leaves, consisting of stalked branched hairs up to 4 mm. long, further distinguish *B. petenensis*. The thin leaves are bullate, and the 8 to 10 pairs of lateral veins are prominent.

The collector describes the plant as a vine, and the specimens certainly appear to have been taken from a liana.

**Sebastiania chiapensis** Lundell, sp. nov. — Arbor parva, ca. 9 m. alta, glabra; folia petiolata, petiolo 6–11 mm. longo; lamina parva, chartacea, ovalia vel elliptica, 2–5 cm. longa, 1.2–3 cm. lata, apice acuta vel acuminata, basi obtusa vel rotundata, serrulata, biglandulosa, nervis lateralibus utroque latere ca. 6; inflorescentiae terminales, racemosae; pedicelli fructiferi 3–5 mm. longi; sepala ovata, 1–1.3 mm. longa, acuminata, ciliata vel sublaciniata; capsula glabra, parva, ca. 6 mm. longa, 8 mm. lata.

MEXICO: Chiapas, Municipio of Venustiano Carranza, wooded slope 3 miles southwest of Pinola Las Rosas along road to Soyatitan, elev. 4,200 feet, July 27, 1965, *D. E. Breedlove 11371* (LL; type), tree 30 feet tall.

Only immature fruiting material is available, and the staminate flowers are unknown. The pedicellate fruits, small leaves on very slender petioles, and the finely but conspicuously serrulate leaf margins serve to distinguish this species from the others of Middle America. At the base of the blade there is a single gland on each side 1.5 to 4 mm. from petiole. The slender veins are elevated on lower surface of leaf, less evident above.

MORTONIODENDRON GUATEMALENSE Standl. & Steyerm., Field Mus. Pub. Bot. 22: 157. 1940.

GUATEMALA: Dept. Peten, Cadenas Road, km. 142 west, on top of rocky hill in *zapotal*, Nov. 1966, *Elias Contreras 6516* (LL), small tree, 25 ft. high, 4 in. diam.; La Cumbre, on top of rocky hill in low forest, March 3, 1967, *Contreras 6641* (LL), shrub, about 25 ft. high, 4 in. diam., fruit brownish; Cadenas, on top of rocky hill, 4 km. on Morales Road, March 13, 1967, *Contreras 6738* (LL), shrub, 20 ft. high, 4 in. diam., "*anonillo*." Dept. Izabal, Pto. Mendez, in *corozal*, 1 km. Puerto Barrios Road, Aug. 8, 1966, *Contreras 5920* (LL), shrub, 20 ft. high, 2 in. diam., flowers creamy-white; Pto. Mendez, on top of rocky hill bordering the village, in *zapotal*, Aug. 13, 1966, *Contreras 5968* (LL), shrub, about 25 ft. high, 3 in. diam.

I have not seen the type of the species, but these collections appear to be referable to *M. guatemalense*. The leaves are rounded at base, and the minute stellate pubescence is sometimes persistent over the entire upper surface of the blades. The subglobose fruits are small ranging from 1.8 to 2.5 cm. in length. It is noteworthy that there are 4 or 5 sepals and petals, not strictly 5 as reported in the original description.

**Mortoniodendron sulcatum** Lundell, sp. nov. — Arbor magna, usque 25 m. alta, ramulis gracilentibus, teretibus, terminalibus, juvenilibus parce stellato-pubescentibus; folia petiolata, petiolo 5–9 mm. longo; lamina subchartacea, oblanceolata vel elliptico-oblonga, 6.5–13 cm. longa, 2.7–6.7 cm. lata, apice subabrupte acuminata, acumine obtusiusculo vel acutiusculo, basi inaequalis, obtusa vel acutiuscula, supra costa nervisque prominulis, subtus prominentibus, basi triplinervia, nervis lateralibus 5- vel 6-jugis, supra parce stellato-puberula, subtus parce stellato-pilosa; inflorescentia terminalis, 2–5 cm. longa, ramulis stellato-pubescentibus; pedicelli fructiferi usque 1.4 cm. longi; capsula sulcata, depresso-globosa, loculicide 4- vel 5-valvis, usque ad 3.2 cm. lata, 2.3 cm. longa, dense fulvo-tomentella, valvis crassis, monosperma.

GUATEMALA: Dept. Peten, Guayacan, La Pita, bordering Laguna Guayacan, in high forest, *ramonal*, Jan. 14, 1968, *Elias Contreras 7463* (LL, type), tree 76 ft. high, 22 in. diam., "*garro del obispo.*"

This species is remarkable for its large 4- or 5-valved, strongly depressed-globose, deeply sulcate fruits. No other *Mortoniodendron* has been reported with 5-valved fruits. The leaves, conspicuously inaequilateral at base and trinerved, have the basal nerves strongly ascending and often extending to the middle of the blade. The pubescence of the leaves, fine and silky beneath, smaller and coarser above, is primarily along the costa and veins. The costa and nerves have small barbate domatia in axils on the lower surface.

MORTONIODENDRON VESTITUM Lundell, Wrightia 3: 121. 1965.

GUATEMALA: Dept. Peten, Guayacan, in high forest bordering airport, Dec. 26, 1967, *Elias Contreras 7327* (LL), tree, 70 ft. high, 15 in. diam., "*cabo de hocha*"; Guayacan, La Pita, in *ramonal* bordering airport, Jan. 20, 1968, *Contreras 7499* (LL), tree, 50 ft. high, 12 in. diam.

In these collections of the tree the fruits are all 4-celled and somewhat larger and sulcate. The number of seed developed ranges from 1 to 6 with as many as 3 seed developed occasionally in a single cell. Seed number appears to be a doubtful feature for use in separating the species of this genus.

**Hybanthus chiapensis** Lundell, sp. nov. — Frutex 1–2 m. altus, ramulis gracilibus, quadrangularis, minute puberulis, internodiis brevibus; folia brevissime petiolata, petiolo 1–3.5 mm. longo, puberulo; lamina chartacea, utrinque puberula, lanceolata, 1.5–4.5 cm. longa, 0.8–2 cm. lata, apice acuminata, basi acuta, serrulata, costa utrinque elevata; flores solitarii, breviter pedicellati; calycis lobi lanceolati, cuspidati, ca. 3 mm. longi, puberuli; petala superiora parva; labellum ca. 6.2 mm. longum, externe puberulum; filamenta nulla, appendiculis ovatis, obtusis, antheras aequantibus; capsula glabra, ca. 1 cm. longa, rostrata.

MEXICO: Chiapas, Carelas, near Motozintla, alt. 2,176 m., April, 1945, *Eizi Matuda 5514* (LL, type), shrub, 1–2 m. high, flowers yellow.

The very small alternate leaves are congested on the slender branchlets. The flowers are solitary, axillary, pedicellate, 3–4 mm. long, articulate above the middle, bibracteolate, minutely puberulent; calyx lobes narrowly lanceolate, cuspidate, equal, about 3 mm. long, with a dorsal rib, sparsely puberulent; petals 5, unequal, the two upper oblong, 2.5 mm. long, the two lateral about 3.4 mm. long, the labellum about 6.2 mm. long, pubescent externally; stamens 5, the anthers subsessile, connate, the appendages membranaceous, equaling anthers, ovate, about 1.5 mm. long, 1 mm. wide, obtuse; ovary glabrous; and, fruiting pedicels up to 7 mm. long. The capsules are 3-celled, about 1 cm. long, rostrate, smooth, glabrous; seeds smooth.

*H. chiapensis* is quite similar to *H. elatus* (Turcz.) Morton, a species with much larger leaves, slender longer pedicels jointed near the apex, and larger flowers.

**Hybanthus Proctori** Lundell, sp. nov.–Herba perennis, erecta, ramulis pubescentibus; folia alterna, stipulata, stipulis subulatis, 3–4 mm. longis, breviter petiolata, petiolo 3–5 mm. longo; lamina elliptica vel lanceolata, raro obovato-elliptica, 3–7.5 cm, longa, 1.5 4 cm. lata, utrinque acuminata vel acuta, subchartacea, crenulato-serrulata, supra parce scabrida; flores solitarii, pedicellati, pedicellis usque 2.5 cm. longis; calycis lobi subulati, usque 4 mm. longi, parce hirsuti; labellum ca. 12 mm. longum, basi pilosum; filamenta brevissima, connectivis antherarum inferiorum pilosis, appendiculis 1–1.4 mm. longis, obtusis, antheras subaequantibus; capsula immatura glabra, ca. 8 mm. longa.

GUATEMALA: Dept. El Quiche, Chunama District, between Pulay and San Juan Cotzal, alt. ca. 6,200 ft., July 1, 1964, *George R. Proctor 25009* (LL, type), erect herb, flowers light violet; Nebaj, on la Presa in clearing, June 17, 1934, *Elias Contreras 5032* (LL), herb, flowers violet-white.

The relationship of *H. Proctori* appears to be with *H. verbenaceus* (H.B.K.) Loes., a species with smaller thicker acute leaves, altogether different pubescence, and pedicels scarcely more than half as long.

*H. Proctori* has a woody base, but is herbaceous aboveground. The stems, petioles, lower leaf surface, and pedicels are all pubescent with rather short soft incurved hairs. The pubescence of the calyx is coarser and subappressed. The labellum is up to 7 mm. wide, broadly rounded at apex. The two stamens, with glands at base of anthers, have pubescent connective dorsally. Filaments of the other three stamens measure about 0.4 mm. long, and nearly as wide. The anthers are narrowly emarginate at apex. Each cell of the ovary has two ovules.

**Orthion caudatum** Lundell, sp. nov. — Arbor 8-metralis glabra, ramulis subgracilibus; stipulae lineari-acuminatae, 1.3–1.7 mm. longae, caducae; folia petiolata, petiolo gracili 6–8 mm. longo; lamina oblanceolata vel oblongo-oblanceolata, 7.5–17 cm. longa, 2.7–5 cm. lata, apice caudato-acuminata, basi acuta vel attenuato-decurrens, margine remote adpresso-serrulata, chartacea, glabra, costa supra versus basin subplana, versus apicem elevata, nervis lateralibus utroque latere 7–9 angulo lato divergentibus prope marginem irregulariter conjunctis gracilibus; flores cymosi, cymis laxe multifloris longipedunculatis axillaribus et ad apices ramorum pseudoumbellatis, usque ad 7 cm. longis, pedunculis subcomplanatis 2–4 cm. longis rectis, bracteis usque ad 2 mm. longis, acuminatis; pedicelli fructiferi usque ad 8 mm. longi; capsula immatura obtuse trigona, usque ad 2.5 cm. longa, apice apiculata.

GUATEMALA: Dept. Izabal, south shore of Lake Izabal between Izabal and Mariscos, at sea level, May 29, 1966, *Gayle C. Jones and Lynden Facey 3512* (LL, type), tree 8 m., fruits green.

The large immature trilocular fruits are up to 2.5 cm. long and conspicuously beaked. Fruits of the other three species are much smaller and rounded apically. Also, the fruits and inflorescence dry blackish, while those of the other species are conspicuously whitened when dried. Although only floral parts persistent at the base of the fruits are available, the flowers evidently are the largest in the genus, with sepals up to 2 mm. long, and petals up to 4 mm. long.

**Rinorea belizensis** Lundell, sp. nov. — Arbor parva; ramuli graciles, dense puberuli; folia petiolata, petiolo 2–4 mm. longo, dense puberulo; lamina chartacea, lanceolata vel elliptica, 4.5–10.5 cm. longa, 2–5 cm. lata, apice acuminata, basi acuta, utrinque parce hirtella, subtus barbata; inflorescentia racemosa, 1.5–3 cm. longa, dense hirtella; pedicelli usque 3.5 mm. longi, hirtelli; sepala parva, ovata, ca. 1 mm. longa, acuta, puberula, minute ciliata; petala lanceolata, 4–4.5 mm. longa, glabra; stamina 3.3–3.5 mm. longa; filamenta libera ca. 0.4 mm. longa, basi glandulosa; antherae ca. 1.4 mm. longae, apice minute biapiculatae; squamae anguste lanceolatae, usque 3 mm. longae; ovarium globosum, hirsutum; stylus 3 mm. longus.

BRITISH HONDURAS: Toledo District, between Monkey River and Cockscomb, in "*mountain cabbage*" ridge, Dec. 21, 1942, *Percy H. Gentle 4294* (LL, type), tree, 8 in. diam., flowers white, "*wild coffee.*"

The pubescence of the leaves is confined principally to the costa and primary nerves on both surfaces, consisting of straight rather stiff short hairs. The 3 to 5 pairs of lateral nerves are evident on both surfaces, and the lower ones are barbate in the axils beneath. The connective scales are crispate below and subentire, extending to base of anthers. The anthers are so minutely biapiculate that this characteristic is most inconspicuous. Each cell of the ovary is uniovulate.

*R. belizensis* appears to be closely related to *R. guatemalensis* (Wats.) Bartlett, the species to which I originally referred the collection. The smaller flowers, very short filaments, essentially unappendaged anther sacs, style pubescent over the basal third, and small mostly lanceolate leaves barbate beneath in axils of lower nerves are features which seem to distinguish *R. belizensis*.

**Rinorea Gentlei** Lundell, sp. nov. — Arbor parva, ramulis puberulis; folia petiolata, petiolo 1.5–3 mm. longo, puberulo; lamina membranacea, lanceolata vel elliptica, 5–13 cm. longa, 2.3–5.6 cm. lata, apice acuminata, basi anguste rotundata et emarginata, remote crenulato-serrulata; inflorescentia subracemosa, breviter pilosa, 2.5–4 cm. longa; pedicelli ca. 1 mm. longi, puberuli; bracteae late ovatae, ca. 1.4 mm. longae, acutae, mucronulatae, strigosae; sepala ovata, ca. 1.5 mm. longa, acuta et mucronulata, strigosa, ciliata; petala oblongo-lanceolata, 3.8–4 mm. longa, obtusa, glabra; stamina usque 3 mm. longa, glabra; antherae 1 mm. longae, emarginatae; ovarium globosum, hirsutum, 4–6-ovulatum.

BRITISH HONDURAS: Stann Creek District, Stann Creek Valley, Antelope Hill, in "*wild coffee*" ridge on hill slope, Feb. 20, 1940, *Percy H. Gentle 3222* (LL, type), small tree, creamish color flowers.

The very thin small leaves are nearly glabrous, but on the undersurface the nerve axils are barbate and there are scattered appressed hairs on the costa and primary veins. The inflorescence is subracemose, short pilose, 2.5–4 cm. long; pedicels and branches of inflorescence together 1–2 mm. long, the joints at or below the middle, puberulent; bract at base broadly ovate, ca. 1.4 mm. long, acute, strigose dorsally and ciliate; the pair of bractlets below joint similar but smaller. The flowers are small with sepals ovate, about 1.5 mm. long, acute and apiculate, strigose dorsally, ciliate; petals oblong-lanceolate, 3.8–4 mm. long, obtusish, nearly glabrous, drying dark brown; stamens up to 3 mm. long, including scales, glabrous; filaments about 1 mm. long including basal gland, the gland about 0.5 mm. long; anthers 1 mm. long, emarginate at apex, the connective scales obtuse, about 2 mm. long, lanceolate, erose marginally; ovary globose, hirsute; placenta 4–6-ovulate.

In 1940 I identified *Gentle 3222 as Rinorea deflexiflora* Bartlett, and the relationship to *R. Gentlei* obviously is very close. But *R. Gentlei* has much smaller leaves, shorter petioles, much shorter pedicels, smaller flowers, and ovary 4–6-ovulate. The pedicels and peduncles with joints at or near the middle, with two bractlets below the joints, indicate a subthyrsoid inflorescence in *R. Gentlei*.

**Rinorea mexicana** Lundell, sp. nov. — Frutex; ramuli graciles, puberuli; folia petiolata, petiolo 4–5 mm. longo, dense puberulo; lamina subchartacea, lanceolata vel elliptica, 5–12.5 cm. longa, 2–5.5 cm. lata, apice

acuminata, basi rotundata, novella utrinque hirtella, subtus barbata; inflorescentia subracemosa, 2–4.5 cm. longa, dense puberula; pedicelli 2–3 mm. longi, dense puberuli; sepala ovata, usque 1.5 mm. longa, puberula, minute ciliata; capsula hirtella, ca. 1.5 cm. longa.

MEXICO: Chiapas, La Ceiba, en la margen del rio La Venta, a 6 km. al E de Raudales, alt. 130 m., bosque tropical a la orilla del rio, April 5, 1966, *Col. L. Gonzalez Quintero 3433* (LL, type), arbusto de 4 m. de alto.

The leaves are very thin at first, and have 5 or 6 pairs of slender primary veins ascending at wide angles. The blades are rounded at base. Pubescence is mostly along the costa and veins. The inflorescence is thyrsoid, for the branches equal the stipes (pedicels) of the flowers so that the joint is medial and subtended by bractlets. Although only immature fruits are available, they probably are less than 2 cm. long at maturity. The affinity of the species may be with *R. Gentlei* Lundell.

**Calyptranthes Tonii** Lundell, sp. nov. — Arbor, ca. 13 m. alta, ramulis crassiusculis, glabratis; folia rigide coriacea, glabrata, breviter petiolata, petiolo crasso, 3–5 mm. longo; lamina laevigata, supra lucida, lanceolata vel lanceolato-elliptica, 6–9.5 cm. longa, 2–5 cm. lata, apice longe acuminata, acumine acutiusculo, basi acuta vel acutiuscula et rubra, supra minute glandulosa; inflorescentia 6–8.5 cm. longa, longe pedunculata, novella peradpresse rufo-pubescens, glabrata; flores sessiles; pedunculi usque ad 5 cm. longi; fructus immaturus globosus.

MEXICO: Chiapas, Municipio of Tenejapa, slope with *Quercus* and *Abies* in Colonia Ach'lum, elev. 8,600 feet, April 26, 1966, *Alush Shilom Ton 858* (LL; type), tree 40 feet tall.

Resembling *C. perlaevigata* Lundell, it differs markedly from that species in leaf form and larger inflorescences. The leaves are pitted above with very small glands, which exclude it from *C. pendula* Berg to which the collection was referred. The very short thick petioles distinguish it further from that species.

The midvein of *C. Tonii* is impressed above, elevated beneath. The fine lateral veins are discernible on both surfaces. In the early fruiting stage, traces of pubescence on the branches of the inflorescence and hypanthium consist of short red appressed hairs which appear to be dibrachiate. A conspicuous collar up to 2 mm. high and 2.5 mm. in diameter persists on the young fruits.

**Calyptranthes venulosa** Lundell, sp. nov. — Frutex, ramulis subteretibus et anguste alatis; ramuli inflorescentiaeque, et folia juvenilia, pilis rufidulis appressis dibrachiatis subsessilibus longitudinaliter directis usque ad 1 mm. longis obsiti; folia petiolata, petiolo 3–5 mm. longo; lamina subcoriacea, oblonga vel anguste lanceolata, 4–7.5 cm. longa, 0.8–

2.5 cm. lata, acuminata vel subacuminata, basi obtusa vel subacuta, nervo medio supra impresso; inflorescentiae 4.5–6.5 cm. longae, multiflorae, e basi ramulorum foliosorum geminatae oriundae; pedunculi ca. 1.5 cm. longi; alabastra obovoideo-fusiformia, 2.2–3 mm. longa, apice obtusa vel rotundata; stylus ca. 5 mm. longus.

MEXICO: Chiapas, Municipio of Ocozocoautla de Espinosa, steep wooded slope 10 miles north of Ocozocoautla along road to Mal Paso, elev. 3,800 ft., June 12, 1965, *D. E. Breedlove 10338* (LL, type), shrub 5 feet tall, flowers yellow.

*C. venulosa* has strongly nerved leaves, with 10 to 12 pairs of widely ascending primary veins anastomosing into a distinct marginal vein about 1 mm. from the edge. The costa and the veins are impressed above. Although of possible affinity to *C. mexicana* Lundell, which has similar small inflorescences and flowers, the leaves are quite distinctive. In *C. venulosa*, the calyptra is 2 mm. in diameter. Its branches are distinctly wing-angled, while those of the type of *C. mexicana* are terete. The pubescence is coarser in *C. venulosa*.

**Eugenia gigas** Lundell, sp. nov. — Arbor usque ad 17 m. alta, 40 cm. diam., ramulis gracilibus subteretibus; folia petiolata, petiolo 5–8 mm. longo; lamina membranacea vel subchartacea, elliptica, oblongo-elliptica vel lanceolata, 4–8 cm. longa, 1.8–4 cm. lata, apice abrupte cuspidato-acuminata, acumine acutiusculo, basi acuta, supra viridis subtus costa impressa, nervis venisque prominulis, subtus paullo pallidior, costa elevata, nervis lateralibus prominulis prope marginem in nervum collectivum conjunctis; inflorescentiae axillares racemosae usque ad 3 cm. longae, crassae; pedicelli fructiferi 2–5 mm. longi, crassi; fructus subglobosi, diametro 1–2 cm.

GUATEMALA: Dept. Izabal, Pto. Mendez, bordering Rio Sarstun, Aug. 9, 1966, *Elias Contreras 5931* (LL, type), small tree, 35 ft. high, 12 in. diam., fruits orange, "*guayabillo.*" Dept. Peten, bordering Rio Sarstun, west of km. 170 of road, in high forest, Aug. 10, 1967, *Contreras 6993* (LL), tree 60 ft. high, 15 in. diam., "*guayabillo.*"

This is an exceptionally large tree for the genus in Middle America, and it seemingly is allied to *E. bumelioides* Standl. The stiff fruiting racemes sometimes up to 3 cm. long, short thick pedicels, large depressed-globose fruits, and thin leaves subabruptly caudate-acuminate appear to distinguish *E. gigas*. The inflorescences, flowers and stems are pubescent at first with reddish appressed hairs, but quite glabrous in the fruiting stage. The disk is 2 to 3 mm. in diameter in flower, over 3 mm. in diameter crowning the fruits.

**Eugenia macancheana** Lundell, sp. nov. — Arbor parva, 8 m. alta, 10 cm. diam., ramulis gracilibus teretibus, internodiis elongatis; folia breviter petiolata, petiolo 3–4 mm. longo; lamina membranacea vel subchartacea, elliptica vel lanceolato-elliptica, 5–9.5 cm. longa, 2.5–5 cm.

lata, obtusa vel subacuminata, acumine obtuso, basi acuta vel acutiuscula, costa impressa, nervis venisque prominulis, subtus paullo pallidior, costa elevata, nervis lateralibus utroque latere ca. 10 prominulis angulo latiusculo adscendentibus fere rectis prope marginem in nervum collectivum conjunctis; flores axillares brevissime racemosi; pedicelli fructiferi 4–7 mm. longi; fructus globosi, diametro 1–1.4 cm.

GUATEMALA: Dept. Peten, Macanche, bordering the lake, in *chechemal*, May 22, 1966, *Elias Contreras 5838* (LL, type), small tree, 25 ft. high, 4 in. diam., fruit dark red, *"ixpanbul."*

In the fruiting stage a few short dibrachiate hairs persist on the pedicels and fruits, but the plants appear glabrous. The rachis of the short racemes is 2 to 5 mm. long. The small bracteoles are distinct, reddish-hairy, persistent, about 0.6 mm. long and acute. The sepals crowning the fruits are in unequal pairs, the largest about 2 mm. long, and sparingly pubescent with reddish hairs. The fruiting disk, slightly elevated, is 2 to 2.5 mm. in diameter.

**Myrcia guatemalensis** Lundell, sp. nov. — Arbor parva, 6–10 m. alta, 8–10 cm. diam., dioecia, resinosa, ramulis glabris; folia petiolata, petiolo 5–15 mm. longo; lamina chartacea vel subcoriacea, glabra, elliptica vel lanceolata, raro oblanceolata, 7–12.5 cm. longa, 3–5 cm. lata, apice obtuse acuminata, basi late cuneata vel acuta, nervo medio impresso; inflorescentia paniculata, parva, 1.5–5 cm. longa, resinosa, glabra vel parce puberula; pedicelli nulli; alabastra parva, usque 1.5 mm. longa; hypanthium campanulatum minute adpresse albo-puberulum; sepala 5, parva, late triangularia, ca. 0.5 mm. longa, pellucido-punctata, parce puberula; petala 5, suborbicularia, 1.5–2 mm. longa, glabra; discus ca. 1.8 mm. latus, annulo staminali pubescente; stamina numerosa, usque 3 mm. longa.

GUATEMALA: Dept. Peten, Cadenas, 4 km., Morales Road, on top of rocky hill, March 13, 1967, *Elias Contreras 6734* (LL, type), small tree, 20 ft. high, 3 in. diam., flowers white, *"guayabillo"*; Cadenas, La Pedrera, in high forest on top of rocky hill, March 23, 1967, *Contreras 6825* (LL), small tree, 30 ft. high, 4 in. diam., flowers white; Cadenas, La Pedrera, in high forest on rocky hill, March 24, 1967, *Contreras 6832* (LL), small tree, 20 ft. high, 3 in. diam., flowers white.

Among the Myrtaceae of Guatemala, this is the first dioecious species to be discovered. Unfortunately only staminate flowers are available, and its generic position is doubtful. In the flowers dissected no vestige of the ovary was found.

On the basis of its paniculate inflorescence and 5-parted flowers, I am tentatively referring the species to *Myrcia*, but it looks more like a *Pimenta*. As in that genus, it has an abundance of resinous glands in all parts. The leaves with the closely parallel veins are in aspect those of

*Pimenta*. The branchlets are compressed at the nodes and somewhat quadrangular below, and the peduncle and branches of the inflorescences are likewise flattened and angular. The hypanthium and calyx of the minute flowers are canescent, but the plant is entirely glabrous otherwise except for the disk.

**Graffenrieda Gentlei** Lundell, sp. nov. — Arbor parva; ramuli crassiusculi, minute et dense rufo-tomentelli; folia longe petiolata, petiolo 3.5–5.5 cm. longo; lamina subchartacea, late ovata, apice subabrupte acuminata, basi cordata, sub-7-plinervia, supra glabrata, subtus novella rufo-tomentella; inflorescentia paniculata, multiflora, longe pedunculata, ca. 25 cm. longa, minute rufo-tomentella; flores sessiles vel subsessiles, glomerati; ovarium 3-loculare; capsula papillosa, oblongo-ellipsoidea, ca. 3.5 mm. longa.

BRITISH HONDURAS: Stann Creek District, Stann Creek Valley, Antelope Ridge, in "*mountain cabbage ridge*" on hilltop, Jan. 26, 1940, *Percy H. Gentle 3171* (LL, type), tree, 8 in. diam., "*broad leaf sirin mansana.*"

In the hope that flowering specimens could be secured, this species has remained undescribed since its discovery in 1940. Only fruiting material is available, and the relationship of *G. Gentlei* is uncertain. Dr. J. J. Wurdack, who has examined the collection, suggests affinity of the species to *G. intermedia* Triana of Peru. That species, of which I have seen the type photograph at Field Museum, has oblong-elliptic 5-plinerved leaves narrowed to an obtuse base.

**Mouriri petenensis** Lundell, sp. nov. - Arbor parva, cauliflora; ramuli crassiusculi, glabri; folia sessilia vel subsessilia, coriacea, omnino glabra, lanceolata, elliptico-lanceolata vel oblongo-lanceolata, 10-17 cm. longa, 5.5–8 cm. lata, apice acuminata, basi rotundata et cordata, uninervia, opaca; cymae 3-florae, fasciculatae, breviter pedunculatae, dense et minute puberulae; pedicelli usque ad 1 cm. longi; calycis tubus campanulatus, ca. 7 mm. longus, minutissime tomentellus; lobi late rotundati, ca. 3 mm. longi; petala ovata, 10.5 mm. longa, acutiuscula; stamina ca. 1.8 cm. longa; filamenta glabra, ca. 1.4 cm. longa; antherae crassae, ca. 4 mm. longae; stylus ca. 1.6 cm. longus, dense puberulus; fructus depresso-globosus.

GUATEMALA: Dept. Peten, Seamay, in low forest on top of rocky hill, Mar. 6, 1967, *Elias Contreras 6662* (LL, type), shrub, 25 ft. high, 3 in. diam., flowers whitish within, lilac outside.

This is the first cauliflorous species to be discovered in northern Central America. It may have affinity to *M. completens* (Pittier) Burret of Panama, which has similar essentially sessile leaves rounded and shallowly cordate at base, but glabrous flowers.

The cymes of *M. petenensis* are fasciculate on old wood, and have stout short peduncles scarcely 2 mm. long. The minute indument is dense.

Fruiting material of the same species was collected on May 18, 1967 near La Cumbre, about 6 km. from the village, bordering Rio Pusila, *(Contreras 6950)*. This was from a tree 40 feet high and 6 inches in diameter. The fruits are described as orange-pink. Contreras reports "*palo lagarto*" as the local name of the tree.

**Ardisia antonensis** Lundell, sp. nov. — Arbor, 30 m. alta; ramuli crassi, novelli minute peradpresse lepidoti; folia petiolata, petiolo crasso, marginato, 7–12 mm. longo; lamina coriacea, oblanceolata, 13–22 cm. longa, 4.5–6.8 cm. lata, apice acuminata, basi obtusa vel acutiuscula, supra ut videtur glabra, subtus dense et minutissime peradpresse lepidota; inflorescentiae simul terminales axillaresque, paniculatae, glabrae, 5–8 cm. longae; flores 5-meri, glabri, umbellati; pedicelli graciles, 5–7 mm. longi; sepala ovata, ca. 1.2 mm. longa, erosa, punctata; corolla 4 mm. longa; petala oblonga, 1.5 mm. lata, basi connata ca. 1 mm.; stamina ca. 2.5 mm. longa; filamenta ca. 1 mm. longa; antherae 2 mm. longae, oblongae, basi bilobae, apice subtruncatae; ovarium glabrum, ovoideum, stylo gracillimo, 4 mm. longo; ovula pluriseriata.

PANAMA: Prov. Cocle, El Valle de Anton, alt. 1000 m., March 16, 1946, *Paul H. Allen 3418* (MO, type; F, LL, isotypes), tree, 30 m., flowers pink.

This is an exceptionally large tree for the genus. The inflorescences are borne on short rather thick lateral branches. The leaf blades, decurrent on the marginate petioles, are dull and thick, with costa prominent beneath and nearly plane above. The venation is inconspicuous and very fine, scarcely discernible on upper surface. Noteworthy is the corolla with petals connate at base into tube one-fourth their length. The filaments, flaring at base, are borne on the corolla tube about midway. As in related species, anthers are concolorous and dehiscent by apical pores, but in *A. antonensis* they differ notably in being subtruncate at apex.

**Ardisia colombiana** Lundell, sp. nov. — Arbor parva, glabra; folia petiolis usque ad 1 cm. longis stipitata; lamina subcoriacea, glabra, obovato-elliptica vel oblanceolata, 9–12 cm. longa, 4–6 cm. lata, basi subcuneata, apice subacuminata, acumine obtusiusculo, integerrima, utrinque leviter prominulo-reticulata, opaca; inflorescentia glabra, terminalis, racemoso-paniculata, 11.5 cm. longa, 13 cm. lata, pyramidata; flores 5-meri; sepala late ovata, ca. 2 mm. longa, nigropunctata, extus glabra, intus glandulosa, ciliolata; corolla ca. 7 mm. longa, basi coalita, intus glandulosa, lobis oblongis, ca. 5.5 mm. longis; stamina ca. 5 mm. longa; filamenta ca. 3 mm. longa; antherae 2.5 mm. longae, basi subsagittatae, apice attenuatae, apiculatae, longitudinaliter dehiscentes; ovarium glabrum; stylus ca. 5.5 mm. longus; ovula pluriseriata, numerosa.

COLOMBIA: Dept. Choco, vicinity of Camp Curiche, S. of Boca Curiche, May 26, 1967, *J. A. Duke 11680* (LL, type), small tree, flowers pinkish, fruits turning black.

The triangular anthers, subsaggitate at base and longitudinally dehiscent, are sharply incurved.

ARDISIA COPEYANA Standl., Field Mus. Pub. Bot. 18: 886. 1938.

PANAMA: humid forest between Alto de las Palmas and top of Cerro de la Horqueta, Chiriqui, alt. 2100 to 2268 meters, March 18, 1911, *H. Pittier 3226* (F).

The type, *H. E. Stork 1592* (F; MICH, isotype), was collected at El Copey, Prov. San Jose, alt. 1650 meters, and the Panama collection, in flower, appears to be referable here. A relationship between *A. copeyana* and *A. Scheryi* Lundell is obvious, but the flowers of the latter are much smaller. In *A. copeyana* only the leaf buds are appressed furfuraceous, while in *A. Scheryi* the indument is more obvious. The lanceolate-oblong anthers of *A. copeyana* are 3 mm. long, taper to the apex, and they are dehiscent by small apical pores. The anthers in *A. Scheryi* are scarcely half as large.

**Ardisia Dukei** Lundell, sp. nov. — Arbor parva, ferrugineo-furfuracea, ramulis crassis; folia subsessilia vel petiolis usque ad 7 mm. longis stipitata; lamina membranacea, oblanceolato-elliptica, usque ad 30 cm. longa, 11 cm. lata, apice subabrupte acuminata, basi attenuata, supra glabrata, subtus peradpresse furfuracea; inflorescentia terminalis, pyramidata, paniculata, dense furfuracea, ca. 30 cm. alta, basi ca. 30 cm. lata; flores subcorymbosi, 5-meri; pedicelli crassi, 1.5–2 mm. longi; sepala ovata, 1–1.3 mm. longa, ciliolata, glabra, nigropunctata; ovarium subglobosum, glabrum; stylus ca. 3 mm. longus; ovula 22–24, 3- vel 4-seriata.

PANAMA: Prov. Darien, peak ca. 300 ft. high between Rio Balsa and Rio Areti at their confluence, Sept. 13, 1966, *J. A. Duke 8741* (MO, type; LL, isotype), tree 4 in. DBH, flowers cream-colored.

Evidently related to *A. Wedelii* Lundell, *A. Dukei* differs markedly in its large open pyramidal inflorescence about 30 cm. high. The small flowers on short thick recurved pedicels distinguish it further. The leaves of *A. Dukei* dry brownish on undersurface.

**Ardisia Fendleri** Lundell, sp. nov. — Arbor parva; ramuli crassiusculi, novelli ferrugineo-furfuracei; folia petiolata, petiolo marginato, 5–10 mm. longo; lamina subchartacea, subintegra, elliptica vel oblongo-elliptica, 10–22 cm. longa, 4.5–9.5 cm. lata, apice subabrupte breviter acuminata, acumine acutiusculo, basi subabrupte acutiuscula, supra glabra, laevia, subtus novella parce adpresse furfuracea, glabrata, costa elevata; inflorescentia laxa, pyramidalis, paniculata, 7.5–10 cm. alta, parce lepidota; flores subcorymbosi, 5-meri; pedicelli 4–7 mm. longi; sepala ovato-elliptica, ca. 1.5 mm. longa, apice rotundata, minute erosula,

punctata; corolla 6 m. longa; petala basi connata, elliptica vel oblongo-elliptica, 2–3 mm. lata, lineato-punctata; stamina, 4–4.5 mm. longa; filamenta ca. 1.5 mm. longa, basi adnata; antherae lineari-oblongae, ca. 3 mm. longae, basi bilobae, apice subtruncatae; ovarium subglobosum, glabrum, stylo gracillimo, 5.5 mm. longo; ovula pluriseriata.

PANAMA: Isthus of Panama, Chagres, Feb. 20, 1850, *A. Fendler 314* (K, type; K, MO, US, isotypes).

The large thin leaves, inflorescences axillary and terminal, furfuraceous indument, and linear concolorous anthers dehiscent by apical pores are distinctive characteristics of *A. Fendleri*. The costa is only slightly sulcate above. Lateral veins are slender and evident on both surfaces, but inconspicuous. Its relationship is with *A. belizensis* Lundell.

Mez in his monograph referred the Fendler collection to *A. compressa* H.B.K. I am guilty like him and others working in this family of applying certain binomials as catchalls. *A. Fendleri* is as distinctive as numerous other species recognized in *Ardisia* and other genera of the Myrsinaceae. How to limit the *A. compressa* syndrome is a problem.

**Ardisia microcalyx** Lundell, sp. nov. — Arbor 10 m. alta; ramuli graciles, novelli minute furfuracei; folia parva, longe petiolata, petiolo marginato, 6–10 m. longo; lamina chartacea vel subcoriacea, lanceolata oblanceolata vel anguste elliptica, 5–9 cm. longa, 2.2–4 cm. lata, apice subabrupte acuminata, basi cuneata, supra glabra, subtus novella peradpresse lepidota, obscure reticulata; inflorescentia terminalis, multiflora, pyramidalis, 5–8 cm. longa, parce furfuracea; flores 5-meri, umbellati vel subcorymbosi; pedicelli 2–3 mm. longi; sepala parva, ovata vel ovato-oblonga, ca. 0.75 mm. longa, punctata; corolla 5.5 mm. longa, punctata; petala basi ca. 0.8 mm. coalita, anguste oblonga, 5.5 mm. longa, 1.6 mm. lata; stamina ca. 4.5 mm. longa; filamenta ca. 2 mm. longa; antherae lanceolatae, 2.5–2.8 mm. longae, apice attenuatae, acutiusculae; ovarium ovoideum glabrum, stylo gracillimo, 5 mm. longo; ovula pluriseriata.

PANAMA: Prov. Chiriqui, vicinity of El Boquete, 900 m., April 24, 1935, *Paul H. Allen 1013* (MO, type; F, K, LL, MICH, UC, US, isotypes), tree 10 m., flowers salmon buff.

The filaments are adnate at base to the corolla tube, and the concolorous slender anthers taper from base to apex. They are dehiscent by minute apical pores. The small cuneate leaves dry blackish, with the costa impressed above, elevated beneath. The lateral veins, obscure above, are evident beneath but very fine.

ARDISIA NEVERMANNII Standl., Journ. Wash. Acad. Sci. 17: 524. 1927.

COSTA RICA: Prov. Limón, Finca Monteeristo, on the Rio Reventazon below Cairo, wet forest, alt. about 25 meters, Feb. 18–19, 1926, *Paul C. Standley & Juvenal Valerio 48603* (US, type), slender shrub 5–8 ft., corolla purple.
COLOMBIA: Dept. Choco, rain forest NW. of Alto Curiche, elev. ca. 300 m., May 20, 1967, *J. A. Duke 11248* (LL), shrub.

This distinctive hirsute species with long simple stiff hairs covering all parts has been known only from the type locality in Costa Rica. Since its discovery in Colombia, it may be expected in Panama.

**Ardisia opaca** Lundell, sp. nov. — Arbor, 20 m. alta; ramuli crassiusculi, glaberrimi vel novelli parce lepidoti; folia opaca, petiolata, petiolo 3–6 mm. longo; lamina subcoriacea, glabra, oblonga vel anguste oblongo-lanceolata, 4.5–10 cm. longa, 1.3–3.5 cm. lata, apice subabrupte breviter acuminata, acumine obtuso, basi obtusiuscula vel acuta, integerrima, laevia; inflorescentia terminalis, multiflora, novella parce peradpresse lepidota, ut videtur glabra; flores subcorymbosi, glabri, 5-meri; pedicelli 3–4 mm. longi; sepala opaca, late ovata, ca. 1 mm. longa, obtusa, glabra; alabastra ovoideo-ellipsoidea, 4 mm. longa, obtusa; petala opaca, laevia, subcoriacea, basi breviter connata, oblongo-elliptica, ca. 4 mm. longa; stamina ca. 4 mm. longa; filamenta libera, ca. 1 mm. longa; antherae lanceolatae, crassae, 3 mm. longae, apice attenuatae et acutiusculae; ovarium glabrum, ovoideum; stylus ca. 2 mm. longus; ovula pluriseriata, numerosa.

PANAMA: Prov. Chiriqui, trail from Paso Ancho to Monte Lirio, upper valley of Rio Chiriqui Viejo, alt. 1500–2000 m., Jan. 16, 1939, *Paul H. Allen 1487* (US, type; LL, MO, isotypes), tree 20 m., flowers white.

Only material in bud is available and measurements of flower parts are from buds which appear ready to open. The species is notable for its rather thick, smooth, opaque corolla. The glands are not elevated and scarcely discernible. The large concolorous anthers are dehiscent by apical pores. Although lepidote indument is present on the youngest growth, it is not very evident, and the species is essentially glabrous. The opaque oblong leaves have very inconspicuous veins. The costa is elevated beneath, nearly plane above.

**Ardisia Storkii** Lundell, sp. nov. — Arbor parva; ramuli novelli peradpresse ferrugineo-furfuracei, graciles; folia parva, petiolata, petiolo 2–4 mm. longo; lamina chartacea vel subcoriacea, lanceolato-elliptica, 2.5–6 cm. longa, 1.5–2.8 cm. lata, apice subabrupte et breviter acuminata, acumine obtuso, basi obtusa vel acutiuscula, supra glabra, subtus novella peradpresse furfuracea, integerrima; inflorescentia terminalis, peradpresse furfuracea, 4–6 cm. longa, pyramidalis; flores 5-meri, corymbosi vel subumbellati; pedicelli 3 mm. longi; sepala ovata, ca. 1.2 mm. longa,

apice rotundata, erosula; corolla 5 mm. longa, basi connata ca. 1 mm., lobis oblongis, ca. 4 mm. longis; stamina 3 mm. longa; filamenta 1.5–2 mm. longa; antherae crassae, oblongae, ca. 2 mm. longae, basi bilobae, apice emarginatae; ovarium ovoideum glabrum; ovula 16, pluriseriata.

COSTA RICA: Carpintera, elev. 5700, March 7, 1928, *H. E. Stork 1135* (LL, type), small tree, only one observed.

Thirty years ago I set this collection aside. The relationship of the species is clearly with *A. Scheryi* Lundell, which has smaller flowers, free filaments, anthers scarcely more than 1.5 mm. long, and corolla about 3 mm. long. *A. Storkii* is notable for its short thick oblong concolorous anthers dehiscent by large flaring apical pores. The filaments in *A. Storkii* cohere to the corolla tube below the middle.

**Ardisia subsessilifolia** Lundell, sp. nov.—Frutex; ramuli crassi, glabri, angulati; folia sessilia vel subsessilia, petiolo marginato; lamina coriacea, glabra, oblanceolata, 7.5–13 cm. longa, 3.5 5 cm. lata, apice subabrupte acuminata, acumine acutiusculo, basi acutiuscula, utrinque minute reticulata; inflorescentia glabra, terminalis, pyramidalis, paniculata, 5–12 cm. longa; flores 5-meri, glabri, subcorymbosi; pedicelli crassiusculi, 5–9 mm. longi; sepala ovato-oblonga, 2–2.5 mm. longa, crassa; corolla 7 mm. longa; petala oblongo-elliptica, basi connata ca. 2 mm., obtusa; stamina ca. 7.5 mm. longa; filamenta gracilia, ca. 4 mm. longa; antherae crassae, 3.2–3.5 mm. longae, lanceolatae, basi bilobae, apice acutiusculae; ovarium ovoideum, stylo gracillimo, ca. 7.5 mm. longo.

PANAMA: Prov. Chiriqui, Bajo Chorro, Boquete District, in rain forest, elev. 7000 ft., March 2, 1938, *M. E. Davidson 364* (F, type; LL, MO, US, isotypes), shrub, 15 to 20 ft., flowers white, calyx tinted bright pink.

The sessile or subsessile rigidly coriaceous leaves and large flowers with stiff long pedicels are features of distinction. The concolorous anthers, dehiscent by apical pores initially, are large, but shorter than the long slender filaments. In collections of the species other than the type, leaf buds are sparsely and minutely lepidote. Otherwise *A. subsessilifolia* is entirely glabrous.

**Parathesis gracilis** Lundell, sp. nov. – Frutex; ramuli gracillimi, minute peradpresse ferrugineo-tomentelli; folia parva, petiolis 5–9 mm. longis stipitata; lamina membranacea, anguste lanceolata, 3.5–8 cm. longa, 1–2.2 cm. lata, apice acuminata, basi attenuata, acuta, integra, supra glabra, subtus parce et minute ferrugineo-lepidota, pellucido-punctata; inflorescentia axillaris, tenuis, longe pedunculata, pauciflora, paniculata, 3.5–6 cm. longa, minutissime et parce stellato-pubescens; flores umbellati vel corymbosi, 5-meri, ante anthesis usque ad 6.2 mm. longi, parce et minutissime tomentelli; pedicelli 1–1.3 cm. longi; sepala anguste triangularia, 1.2 mm. longa, acuta; petala anguste triangularia, ca. 7 mm.

longa, intus papilloso-tomentosa; stamina 3.2 mm. longa; filamenta crassa, ca. 1.8 mm. longa, parce glanduloso-papillosa; antherae erectae, lanceolatae, ca. 2 mm. longae, apiculatae, dorso area parce punctata praeditae; ovarium ovoideum, apice parce papillosum; stylus 4.5 mm. longus, basi parce papillosus; ovula 12, uniseriata.

MEXICO: Oaxaca, path between Congrejo Chico and El Armadillo, about 2000 feet above Valle Nacional, in coffee growing area, Dec. 25, 1966, *A. C. Faberge s.n.* (LL, type).

A remarkably distinct species related to *P. Rekoi* Standl. and *P. macronema* Bullock, but differing at once from both in having short thick filaments and much larger anthers. The glands of the anthers are small, yellowish and inconspicuous. The leaves of *P. gracilis* are strikingly like those of *P. tenuis* Standl., a related species endemic to Oaxaca.

**Marsdenia tikalana** (Lundell) Lundell, comb. nov. *Matelea tikalana* Lundell, Phytologia 16: 446. 1968.

**Cordia petenensis** Lundell, sp. nov. — Arbor ca. 10 m. alta, abortu styli staminumve dioica, ramulis hornis crassiusculis, juventate pilis erectis et setis rigidis usque 1 mm. longis subvelutino-vestitis; folia petiolata, petiolo 6–10 mm. longo; lamina oblongo-elliptica vel elliptica, 2–6.5 cm. longa, 1–3 cm. lata, apice acuta, remote denticulata, basi obtusa vel acutiuscula, chartacea, supra substrigosa, subtus velutina; inflorescentia terminalis, 5–10 cm. longa, dense cymoso-paniculata, floribus unisexualibus, calyce subcylindraceo ca. 7 mm. longo, costato, apice 3- vel 4-dentato, extus hirsuto; corolla alba ad 12 mm. longa, tubo ca. 8 mm. longo, lobis oblongis recurvatis ca. 4 mm. longis et 2.75 mm. latis, filamentis floris masculi ca. 5 mm. longis basi villosis; ovarium glabrum, stylo nullo.

GUATEMALA: Dept. Peten, Lake Peten Itza, Remate, bordering the village, April 26, 1960, *Elias Contreras 894* (LL, type), tree, 12 in. diam., 30 ft. high, flowers white.

*C. petenensis*, referable to section *Pilicordia*, is a dioecious species without evidence of style in the staminate flowers. Its relationship evidently is with *C. diversifolia* Pavon. The small densely pubescent leaves are noteworthy. All parts are covered with heterotrichous indument, the hairs up to 1 mm. long.

**Bertiera tenuis** Lundell, sp. nov. – Frutex, ramulis glabratis; folia petiolata, petiolo 3–5 mm. longo; lamina membranacea, anguste lanceolata vel oblongo-lanceolata, 5.5–14 cm. longa, 1.5–4 cm. lata, utrinque attenuato-acuminata, supra glabra, subtus ad nervos parce strigosa, nervis lateralibus utroque latere 4–6; inflorescentia anguste cymoso-paniculata, laxa, pedunculata, parce strigosa vel glabrata, floribus brevissime pedicellatis vel sessilibus; calyx cum hypanthio ca. 1.5 mm. longus, parce strigillous vel fere glaber, calycis limbo brevissime dentato, dentibus late

triangularibus; corolla alba, ca. 4.5 mm. longa, extus parce hirsuta, lobis ca. 2 mm. longis, subulato-acuminatis, tubo brevioribus, intus barbato, apices tantum antherarum exserti, stylo breviter exserto; bacca globosa, 3.5–4 mm. diam., glabra vel parce strigosa.

GUATEMALA: Dept. Alta Verapaz, Sebol, in high forest about 800 m. west of the village, bordering arroyo, April 15, 1964, *Elias Contreras 4318* (LL, type), shrub 12 ft. high, 2 in. diam., flowers white, fruits blue.

The very thin membranous narrow leaf blades with fewer veins, sparse pubescence of all parts, and smaller flowers and fruits appear to distinguish *B. tenuis* from *B. guianensis* Aubl. of the same region. In *B. tenuis* the flowers are short pedicellate or sessile, while they are strictly sessile in *B. guianensis*. The apical appendage of the anther is short, about half the length of the anther appendage in *B. guianensis*.

GUETTARDA TIKALANA Lundell, Wrightia 2: 63. 1960.

GUATEMALA: Dept. Peten, Tikal National Park, Tikal, in high secondary forest along trail to Aguada Seca, Feb. 24, 1969, *C. L. Lundell 15732* (LL), woody vine; Tikal National Park, on Uaxactun trail, in *escobal*, July 18, 1959, *Lundell 16519* (LL, type), woody vine; Tikal National Park, on Uaxactun trail, 1 km. north of Tikal, Nov. 18, 1959, *Elias Contreras 401* (LL), woody, clambering; on *pinal* trail, about 25 km. of Tikal, in *acahual*, July 22, 1960, *Contreras 1358* (LL), woody, clambering; Dolores, bordering pineland, low forest 2 km. south, May 3, 1961, *Contreras 2244* (LL), woody, clambering.

BRITISH HONDURAS: Toledo District, Temash River, on river bank, June 5, 1944, *Percy H. Gentle 4657* (LL), woody vine; near Condemn Branch Creek, in cohune ridge, April 23, 1946, *Gentle 5552* (LL), tree, 7 in. diam.; Feeder Road leading to Big Fall, in cohune ridge, April 10, 1950, *Gentle 7019* (LL), woody vine (shrub like), white flowers; Joe Taylor Creek, in broken ridge, creekside, August 15, 1951, *Gentle 7404* (LL), shrub, "*wild lemon*"; between Orange Point and Moho River, in high ridge, March 31, 1952, *Gentle 7622* (LL), woody vine, flowers white.

*Gentle 7622* has stout spines up to 1 cm. long on the stems, a unique feature in *Guettarda*. Flowers in this collection have a 4-celled ovary with a pendulous ovule from apex of each cell. The sericeous corolla tube is up to 1.5 cm. long, slender, glabrous within, bearing 4 stamens with sessile included anthers in throat. The calyx is subtruncate. The large obovoid-ellipsoid fruits are up to 2.5 cm. long, and densely covered with a fine pale indument.

**Sickingia lancifolia** Lundell, sp. nov. — Arbor glabra, ramulis teretibus; stipulae usque 1 cm. longae, deciduae; folia glabra, angustata, longe petiolata, petiolo usque 3 cm. longo; lamina chartacea, oblongo-lanceolata vel lanceolata, 10–17 cm. longa, 3–6 cm. lata, apice acuminata, basi acuta, nervis lateralibus utroque latere 9–12, nervulis obscure reticulatis; infructescentiae terminales, parvae, 2–7 cm. longae; pedicelli fructiferi crassi,

3–4 mm. longi; capsula subglobosa, 1.5–2 cm. lata, seminibus numerosis, alatis, usque 1.5 cm. longis, 0.6 cm. latis.

GUATEMALA: Dept. Peten, Laguna Petexbatun, in high forest bordering lake, on Escarbadero, April 2, 1964, *C. L. Lundell 18224* (LL, type), small tree, 35 ft. high, 5 in. diam., "*chacahuante*," "*saltemuch.*"

In its narrow leaves, long slender petioles and small inflorescence, this is one of the most distinctive species in the genus. The insect vesicles in the axils of the primary veins are well developed and mostly glabrous. In the fruiting stage, *S. lancifolia* is glabrous.

**Sickingia lancifolia** Lundell var. **puberula** Lundell, var. nov. – Arbor, ramulis teretibus, puberulis; folia barbata, longe petiolata, petiolo 1–2.5 cm. longo; lamina chartacea, oblongo-lanceolata vel ovato-lanceolata, 7.5–16 cm. longa, 2.8–6 cm. lata, apice acuminata, basi rotundata, nervis lateralibus utroque latere 7–9; infructescentiae terminales, parvae, puberulae; capsula subglobosa, usque 2 cm. diam.

GUATEMALA: Dept. Peten, Lacandon, in *bajo*, about 1 km. 700 m. south, March 12, 1962, *Elias Contreras 3514* (LL, type), tree 40 ft. high, 6 in. diam., "*saltemuch.*"

The variety differs in having leaves distinctly rounded at base, and in its puberulent branchlets and infructescence. The vesicles in the axils of the primary veins are barbate, and not as well developed as in *S. lancifolia*. Except for a few hairs along the costa beneath and the barbate axils, the leaves are glabrous.

**Sickingia vestita** Lundell, nom. nov. *Sickingia mollis* Lundell, Contrib. Univ. Mich. Herb. 4: 32. 1940, not *Sickingia mollis* Standl., Field Mus. Pub. Bot. 11: 271. 1936.

MEXICO: Tabasco, Reforma on the Rio San Pedro de Martir above Balancan, May 22–26, 1939, *Eizi Matuda 3161* (LL, isotype).

GUATEMALA: Dept. Peten, Dos Lagunas, about 10 km. NNW of the village, in *tintal*, December 19, 1960, *Elias Contreras 1707* (LL), tree, 12 in. diam., 50 ft. high, "*saltemuch.*"

The leaves of *S. vestita* are quite similar in form to those of *S. salvadorensis* (Standl.) Standl. Flowers are needed to clarify relationships. The pubescence and large seed are distinctive features.

VOLUME 4 DECEMBER, 1968 NUMBER 2

# WRIGHTIA

A BOTANICAL JOURNAL

CONTENTS

New Genera and Species of American Myrsinaceae — I.
By Cyrus Longworth Lundell ..... 53

Some Additions and Corrections to the Flora of Texas — VI.
By Donovan S. Correll ..... 74

Studies of Tropical American Plants — V.
By Cyrus Longworth Lundell ..... 79

FEB 10 1969

PUBLISHED BY
TEXAS RESEARCH FOUNDATION
RENNER, TEXAS

# WRIGHTIA

WRIGHTIA, a botanical journal, is a publication of Texas Research Foundation. The contributions are by staff members and collaborators. Each volume will contain a series of numbers. The numbers will be issued at irregular intervals over a period of several years.

VOLUME 4, NUMBER 2
ISSUED DECEMBER 31, 1968

Printed in the U.S.A.
Etheridge Printing Company
Dallas, Texas

WRIGHTIA

VOLUME 4 DECEMBER, 1968 NUMBER 2

# NEW GENERA AND SPECIES OF AMERICAN MYRSINACEAE–I

CYRUS LONGWORTH LUNDELL

Since Mez published his monograph of the Myrsinaceae in 1902, no systematic study of the American genera and species has been undertaken. The accumulated collections since 1902 far outnumber those then available.

The work of Donnell Smith was contemporary with and subsequent to that of Mez, and some outstanding species were discovered and described by him. Paul C. Standley made sporadic forays into the family, and I. Urban published on the Myrsinaceae of the West Indies, but the work of these men was not monographic in scope. Apart from my contributions during the past three decades, a few additional species have been described by A. C. Smith, C. V. Morton and others.

Although my interest is primarily in the North American mainland, materials are being accumulated for a revision of *Ardisia*. The preparation of an account of the Myrsinaceae for the *Flora of Panama* is well advanced. In Panama alone there are more species of *Ardisia* than Mez reported for all the Western Hemisphere in 1902.

Among the new species described are several from collections received for identification from Prof. Leandro Aristeguieta, Director of the Instituto Botanico in Caracas, from Dr. Peter H. Raven of Stanford University, and from Dr. James A. Duke of Battelle Memorial Institute.

**Ardisia acutissima** (Cuatr.) Lundell, comb. nov. *Parathesis acutissima* Cuatr., Revista Acad. Colomb. 8: 324. 1951.

COLOMBIA: Dept. del Valle, Costa del Pacifico, Rio Cajambre, Barco, alt. 5–80 m., April 28, 1944, *J. Cuatrecasas 17219* (LL, isotype).

In leaf form this species somewhat resembles *A. Pittieri* Mez. *A. acutissima* has rigidly coriaceous sharply acuminate leaf blades, slender racemes in bipinnate paniculate inflorescences, long slender pedicels, and small imbricate rounded ciliate sepals about 1.4 mm. wide.

**Ardisia Allenii** Lundell, sp. nov. — Arbor parva; ramuli crassi, glabri; folia magna, glabra, petiolata, petiolo crasso, 10–12 mm. longo, marginato; lamina coriacea, integra, obovato-elliptica, elliptica vel oblanceolata, 17–23 cm. longa, 5.5–9 cm. lata, apice breviter subacuminata,

acumine obtuso, basi late cuneata; inflorescentia terminalis, bipinnatim paniculata, subracemosa, glabra, pyramidalis, usque ad 15 cm. longa; flores 5-meri, glabri; pedicelli crassi, 1–2.5 mm. longi; sepala libera, ciliata, late ovata, 4–4.5 mm. longa, apice rotundata, nigro-punctata, intus glandulosa; petala anguste oblonga, 10–11 mm. longa, asymmetrica, basi connata ca. 2 mm., intus glandulosa; stamina usque ad 8 mm. longa; filamenta crassa, ca. 3 mm. longa; antherae lanceolatae, 5.5 mm. longae, dorso nigro-punctatae, apice obtusae; ovarium glabrum, stylo 8 mm. longo; ovula pluriseriata, numerosa.

PANAMA: Prov. Darien, Rio Chico, vicinity Yaviza, 100 ft., June 9–11, 1947, *Paul H. Allen 4579* (US, type; LL, MO, isotypes), tree, 30 ft., flowers very pale pink with yellow stamens; Quebrada Nigua below Sante Fe, Sept. 29, 1966, *J. A. Duke 8824* (MO), shrub to 20 ft.

To Paul H. Allen we are forever indebted for a remarkable series of collections of Myrsinaceae, and this outstanding species belatedly commemorates his contribution to our knowledge of this family in Central America.

*A. Allenii* has affinity to *A. robusta* Mez, of which I have examined the type photograph and a fragment of the type (*Karsten s.n.*, F) from Venezuela. The sepals of *A. robusta* are not ciliate, and the flowers are smaller with the anthers only 3 mm. long.

**Ardisia bella** Lundell, sp. nov. — Arbor glabra, parva, ca. 7 m. alta; ramuli crassiusculi; folia longe petiolata, petiolo marginato, 8–20 mm. longo; lamina integra, chartacea, concolora, punctata, glabra, oblanceolata vel oblongo-oblanceolata, 13–21 cm. longa, 4.6–6.2 cm. lata, apice late obtusa, basi attenuata, subcuneata; inflorescentia terminalis, glabra, 14 cm. longa, bipinnatim paniculata, subspicata; pedicelli crassi, 1–2 mm. longi; flores 5-meri; sepala libera, lanceolato-ovata, 5–6 mm. longa, apice late obtusa, ciliolata, intus glandulosa, nigro-punctata; petala lineari-lanceolata, 12.5 mm. longa, basi connata ca. 2.5 mm., apice late obtusa, nigro-punctata, intus glandulosa; stamina 9 mm. longa; filamenta basi coalita, ca. 4 mm. longa, crassa; antherae crassae, 4.5 mm. longae, lineari-lanceolatae, apice acutae, epunctatae; ovarium glabrum, stylo 1 cm. longo; ovula pluriseriata, numerosa.

COLOMBIA: forest along stream 18 km. SW of Carraipia, alt. ca. 100 m., June 18, 1944, *Oscar Haught 4207* (F, type; LL, isotype), small tree to about 7 m. high, much-branched, leaves glossy, deep green, the flowers white, showy, very fragrant.

The large flowers are rather remote on the spikes of the inflorescence. The petals are erect at first, spreading and rolling back tightly after anthesis, and the anthers dehisce at first by small apical pores. Clearly visible with the naked eye, the glands of the slender-veined leaf blades appear as minute splotches, some lineate but mostly rounded. This

unique species probably is related to *A. valida* Mez which is described as having emarginate sepals that are not ciliate, and flowers densely spicate.

**Ardisia blepharodes** Lundell, sp. nov. — Frutex, 3–5 m. altus, ramulis gracilibus, ferrugineo-furfuraceis; folia parva, petiolata, petiolo canaliculato, 3–9 mm. longo; lamina chartacea, integra, discolora, supra glabra, subtus adpresse ferrugineo-furfuracea, oblanceolata, 5–10 cm. longa, 2.3–3.2 cm. lata, apice subabrupte acuminata, acumine obtusiusculo, basi acuta, costa supra impressa; inflorescentia pyramidalis, tripinnatim paniculata, usque ad 15 cm. longa, furfuracea; flores 5-meri, glomerati, furfuracei; pedicelli crassi, usque ad 1.5 mm. longi; sepala libera, ovato-elliptica, ca. 3 mm. longa, asymmetrica, fimbriata, nigro-punctata; ovarium glabrum, stylo ca. 5.2 mm. longo.

COSTA RICA: Prov. Cartago, El Muñeco, on the Rio Navarro, alt. 1400–1500 meters, in moist forest, March 6, 7, 1926, *Paul C. Standley & Ruben Torres R. 51266* (US, type), shrub 10–15 ft.

Of possible affinity to *A. palmana* Donn. Sm., *A. blepharodes* is notable for its small leaves with slender petioles, short thick pedicels, and strongly asymmetrical sepals which are fimbriate on the covered edge.

**Ardisia chahalana** Lundell, sp. nov. — Frutex, ca. 4 m. altus; ramuli graciles, novelli parce adpresse lepidoti; folia petiolata, petiolo canaliculato, 5–8 mm. longo; lamina integra, chartacea, glabrata, oblongo-lanceolata vel oblongo-elliptica, 9–16 cm. longa, 3–6 cm. lata, apice acuminata, acumine acutiusculo vel obtusiusculo, basi acuta, utrinque obscure reticulato-venosa, subtus novella parce adpresse lepidota; inflorescentia terminalis, pyramidata, tripinnatim paniculata, usque ad 14 cm. longa et lata, multiflora, basi novella parce lepidota; flores 5-meri, corymbosi; pedicelli graciles, 5–7 mm. longi; sepala parva, ovato-elliptica, 1–1.2 mm. longa, parce et minute aurantiaco-punctata, minutissime eroso-ciliolata; petala oblongo-elliptica, ca. 5 mm. longa, symmetrica, parce aurantiaco-punctata, basi coalita ca. 1 mm.; stamina 4–4.5 mm. longa; filamenta 1.5–2 mm. longa; antherae lanceolatae, 2.4–2.7 mm. longae, basi affixae, apice obtusae, epunctatae; ovarium glabrum; stylus ca. 5 mm. longus; ovula pluriseriata.

GUATEMALA: Dept. Alta Verapaz, Chahal, bordering Rio Chiyú, in high forest, 4 km. north from airport, Oct. 11, 1968, *Elias Contreras 7893* (LL, type), shrub, 12ft. high, 2 in. diam., corolla white.

Of affinity to *A. belizensis* Lundell, *A. chahalana* may be distinguished by its smaller anthers, long filaments often subequaling anthers, smaller sepals, and oblongish leaves. The punctation is minimal with small orange glands.

**Ardisia conoidea** Lundell, sp. nov. — Frutex vel arbor parva; ramuli crassi, ferrugineo-furfuracei; folia subsessilia, petiolo ca. 5 mm. longo, crasso; lamina chartacea, integra, oblanceolato-elliptica, usque ad 30 cm. longa, 10 cm. lata, apice subabrupte acuminata, basi rotundata, novella lepidota; inflorescentia ferrugineo-furfuracea, bipinnatim paniculata, 15 cm. longa; flores 5-meri, subcorymbosi; pedicelli 3–5 mm. longi; sepala asymmetrica, suborbicularia, 1–1.2 mm. longa, eroso-ciliolata, crassa, nigro-punctata; corolla dense nigro-punctata, ca. 4.5 mm. longa; petala lanceolata, acuta, basi coalita 1–1.3 mm.; filamenta ca. 0.6 mm. longa; antherae crassae, lanceolato-oblongae, 2.3–2.6 mm. longae, apice acutae vel apiculatae; ovarium glabrum, stylo punctato, ca. 3.5 mm. longo; ovula pluriseriata, numerosa.

COSTA RICA: Tapantí, alt. 1300 m., July 15, 1937, *Manuel Valerio 1624* (F, type; LL, fragment of type).

The measurements of the flowers were made from dried-up fragmentary material, and the specimen is inadequate, but a distinctive species is represented in the small group with large subsessile leaves auriculate or narrowed and rounded at base. The pedicels are enlarged upward, and cone-like, whence the specific name. The affinity of *A. conoidea* appears to be with *A. Wedelii* Lundell of Panama.

**Ardisia Cookii** Lundell, sp. nov. — Arbor parva; ramuli graciles, dense furfuracei; folia petiolata, petiolo 4–7 mm. longo, canaliculato, subtus furfuraceo; lamina membranacea, denticulata, oblongo-elliptica vel oblanceolato-elliptica, 6.5–11 cm. longa, 3–4.3 cm. lata, apice acuminata, basi acutiuscula, supra glabra, subtus novella parce lepidota; inflorescentia terminalis, paniculata, usque ad 6 cm. longa, furfuracea; flores 5-meri, umbellati; pedicelli 3–4 mm. longi; sepala ovata, ca. 1.2 mm. longa, minute aurantiaco-punctata; petala oblongo-elliptica, 6 mm. longa, basi connata, parce aurantiaco-punctata; stamina 6 mm. longa; filamenta 1.6–2 mm. longa; antherae basi affixae, 3.5–3.8 mm. longae, lineari-lanceolatae, acutae, epunctatae; ovarium glabrum, stylo 6 mm. longo; ovula pluriseriata.

COSTA RICA: Buena Vista, road to San Carlos Valley, alt. 600 m., April 16, 1903, *O. F. Cook & C. B. Doyle 139* (US, type; LL, isotype), small tree 12 ft. high, flowers white, slightly pinkish.

*A. Cookii*, although its inflorescences are terminal in the type, may have affinity to *A. longicaudata* Lundell, which has similar denticulate leaves. In the latter the anthers are only about half as long and dorsally punctate. In *A. Cookii* the large anthers are epunctate and the inflorescences are conspicuously furfuraceous.

In another Costa Rican collection, *Austin Smith F1912* (F), which appears to be referable to *A. Cookii*, some inflorescences are axillary.

**Ardisia crassipes** Lundell, sp. nov. — Arbor, 20 m. alta; ramuli crassi, lepidoti; folia alternata, coriacea, petiolata, petiolo crasso, marginato, 1–1.5 cm. longo, 5 mm. diam.; lamina oblongo-elliptica, 21–25 cm. longa, 8–9.5 cm. lata, apice subabrupte acuminata, basi acuta, supra glabrata, subtus peradpresse lepidota, integra, opaca; inflorescentia parce furfuracea, paniculata, ramulis crassis; pedicelli fructiferi crassi, 1–1.5 mm. longi, usque ad 4 mm. diam.; flores 5-meri; sepala libera, coriacea, late suborbicularia, ca. 2.5 mm. longa, asymmetrica, ciliata, apice rotundata, punctata; fructus obovoideus.

PANAMA: Prov. de Bocas del Toro, Robalo Trail, northern slopes of Cerro Horqueta, alt. 6000–7000 ft., Aug. 5–7, 1947, *Paul H. Allen 4991* (MO, type; LL, fragment of type), tree, 60 ft., fruits purple.

Only detached branches of the inflorescence are available. Its large coriaceous leaves and the thick branches of the inflorescence with subsessile flowers borne on thick lateral branches less than 5 mm. long set *A. crassipes* apart as one of the most distinctive of the American Myrsinaceae. *A. Hagenii* Lundell and *A. blepharodes* Lundell have similar thick asymmetrical sepals, ciliate or fimbriate on the overlapped margin, nude on the exposed margin.

**Ardisia cuneata** Lundell, sp. nov. — Arbor parva, 4–5 m. alta; ramuli crassiusculi, glabri; folia parva, petiolata, petiolo 5–10 mm. longo; lamina subcoriacea, integra vel subintegra, opaca, glabra, cuneato-oblanceolata, 5.5–12 cm. longa, 2.2–4.5 cm. lata, apice breviter subacuminata vel obtusiuscula; inflorescentia bipinnatim paniculata, usque ad 17 cm. longa, laxa; flores 5-meri, racemosi; pedicelli 3–5 (7) mm. longi, minutissime puberuli; sepala libera, ovata vel late ovata, 2.7–3.4 mm. longa, intus glandulosa, symmetrica, nigro-punctata, ciliolata; corolla 7 mm. longa, extus glabra; petala basi coalita 2 mm., tubo cupulato, intus glanduloso, punctata, ovato-elliptica vel elliptica, symmetrica, apice rotundata; stamina 4 mm. longa; filamenta crassa, ca. 1.6 mm. longa; antherae crassae, anguste triangulares, 3 mm. longae, concolorae, apice obtusiusculae; ovarium glabrum, stylo lineato-picto, 4.5 mm. longo; ovula pluriseriata, numerosa.

VENEZUELA: Estado Falcon, selva nublada, Cerro Sta. Ana, Paraguana, alt. 650-750 m., Dec. 1953, *Tobias Lasser & L. Aristeguieta 3414* (VEN, type; LL, fragment of type), arbol de unos 4–5 m. de alto; *Lasser & Aristeguieta 3412* (VEN; LL, fragment), arbusto o arbol pequeño.

The fine nerves of the leaves are strongly ascending and rather obscure on both surfaces. The costa is nearly plane above, elevated beneath. In the cupular corolla tube, the stamens are inserted about 1 mm. above base.

Only a single good flower has been available for dissection (from *3412*), and all measurements were made from it. Although *A. cuneata* appears to be very close to *A. scoparia* Mez, it has larger flowers, symmetrical petals, and distinctly cuneate leaves. In 1966 (Fieldiana Bot. 24 (8): 151) I reduced *A. scoparia* to synonymy under *A. revoluta* H.B.K., which was most probably a mistake, for *A. scoparia* appears to be distinct.

**Ardisia darienensis** Lundell, sp. nov. — Arbor parva, usque ad 5 m. alta; ramuli crassi, ferrugineo-furfuracei; folia subsessilia, petiolo crasso, marginato, usque ad 1 cm. longo; lamina chartacea, integra, supra glabra, subtus ferrugineo-furfuracea, obovata, obovato-elliptica vel oblanceolata, 11–21 cm. longa, 5–9.5 cm. lata, apice abrupte acuminata, acumine acuto, basi subrotundata, costa supra impressa; inflorescentia terminalis, tripinnatim paniculata, racemosa, laxa, usque ad 25 cm. longa, adpresse furfuracea; pedicelli fructiferi crassi, 3–6 mm. longi; flores 5-meri; sepala coriacea, ovata, ca. 5 mm. longa, ciliata, libera, apice rotundata, nigropunctata; fructus globosus, ca. 1 cm. diam.

PANAMA: Prov. Darien, Chepigana District, Crest, Cana-Cuasi Trail, in rain forest, March 15, 1940, elev. 5500 ft., *M. E. Terry & R. A. Terry 1563* (F, type; MO, isotype), tree, 10–15 ft. high.

In appearance suggestive of *A. glomerata* Lundell, *A. darienensis* differs notably in having racemose flowers and indument strictly furfuraceous.

**Ardisia Edwardsii** Lundell, sp. nov. – Frutex vel arbor parva; ramuli graciles, novelli minute lepidoti; folia petiolata, petiolo 4–8 mm. longo, canaliculato; lamina glabrata, integra, membranacea vel subchartacea, elliptica vel oblongo-elliptica, 7.5 17 cm. longa, 3–6.5 cm. lata, apice subabrupte breviter acuminata, acumine obtusiusculo, basi acuta, nigropunctata; inflorescentia terminalis, parce lepidota, 3-pinnatim paniculata, 6–10 cm. longa; flores 5- raro 4-meri, subcorymbosi; pedicelli graciles, 3.5–6 mm. longi; alabastra anguste lanceolato-elliptica, 6–6.5 mm. longa, apice acuta vel subacuminata; sepala hyalina, ovato-lanceolata, 1–1.2 mm. longa, apice rotundata, minute erosa; corolla 6–7 mm. longa; petala oblongo-lanceolata, apice asymmetrica, basi coalita ca. 0.7 mm.; stamina 4.5–5.2 mm. longa; filamenta 1.5–1.7 mm. longa; antherae lineari-lanceolatae, 3.2–3.4 mm. longae, apice attenuatae, acutae, epunctatae; ovarium glabrum, stylo 5–5.5 mm. longo; ovula pluriseriata.

HONDURAS: Dept. Cortes, Santa Cruz de Yojoa, open mountain forest, alt. 2000 ft., Aug. 23, 1933, *J. B. Edwards 649* (UC, type; LL, fragment of type; F, US, isotypes), shrub or small tree 20 ft. tall, flowers old ivory.

The sepals and petals are sparsely punctate with orange glands. The species has thin oblong or elliptic leaves, very slender flower buds almost acuminate at apex, thin small sepals, very slender anthers, and placenta

with comparatively few ovules. As in other species of the *A. belizensis* Lundell group, the anthers open by apical pores.

**Ardisia guttata** Lundell, sp. nov. — Arbor glabra; ramuli crassi; folia glabra, petiolata, petiolo marginato, crassiusculo, 5–9 mm. longo; lamina chartacea, integra, guttata, oblanceolata vel oblongo-oblanceolata, 17–20 cm. longa, 4.5–6.7 cm. lata, apice late subacuminata, acumine obtuso; inflorescentia glabra, terminalis, bipinnatim paniculata, racemosa; pedicelli fructiferi crassiusculi, 2.5–5 mm. longi; sepala 5, libera, ovata, ca. 4 mm. longa, emarginata vel integra, ciliata, intus glandulosa, apice rotundata, nigro-punctata; ovarium glabrum, stylo ca. 7 mm. longo.

PANAMA: Prov. Darien, 3 miles E Santa Fe, July 16, 1966, *E. Tyson, J. Dwyer, K. Blum & J. Duke 4666* (MO, type; LL, isotype), petals white.

In the absence of flowers the relationships are not clear, but the taxon appears to have affinity to *A. foetida* Willd., as interpreted by Mez in his monograph. *Linden 890* (F) cited by Mez as *A. foetida*, has pedicels up to 2.5 mm. long and longer broader sepals. In *A. guttata* the thinner leaves are larger and conspicuously guttate with opaque glands.

**Ardisia Hagenii** Lundell, sp. nov. — Arbor, usque ad 11 m. alta; ramuli crassi, novelli adpresse ferrugineo-furfuracei; folia petiolata, petiolo marginato, usque ad 1.5 cm. longo; lamina chartacea vel subcoriacea, integra, supra glabrata, subtus furfuracea, lanceolato-oblonga vel lanceolato-elliptica, 15–23.5 cm. longa, 6–8 cm. lata, apice subabrupte acuminata, acumine acuto, basi acuta, nervosa, costa supra impressa; inflorescentia terminalis, bipinnatim paniculata, usque ad 15 cm. longa, furfuracea; flores 5-meri, glomerati; pedicelli crassi, usque ad 2 mm. longi; sepala libera, coriacea, furfuracea, fimbriata, asymmetrica, suborbicularia, 2.5–3.5 mm. longa, minute nigro-punctata; corolla glabra; petala coriacea, acuta; antherae anguste lanceolatae, acutae; ovarium glabrum, subcylindricum, stylo 3.4 mm. longo, punctato; ovula pluriseriata.

PANAMA: Prov. Chiriqui, Boquete Region, Horqueta, cloud forest, 6500 ft., April 17, 1940, *Christine & Wolfgang von Hagen 2008* (MO, type), tree 35 ft., trunk 5 in. diam., wood pink in color.

The short upper branches give the inflorescence of *A. Hagenii* a subspicate appearance. Its affinity is to *A. blepharodes* Lundell, which has small altogether different leaves and an open inflorescence. Both species have asymmetrical sepals fimbriate on the covered side.

**Ardisia Lasseri** Lundell, sp. nov. — Frutex; ramuli crassiusculi, glabri; folia petiolata, petiolo marginato, usque ad 1 cm. longo, canaliculato; lamina chartacea vel subcoriacea, denticulata, elliptica vel obovato-elliptica, 13–21 cm. longa, 6–9 cm. lata, apice acuta vel breviter acumi-

nata, basi subcuneata, pellucido-punctata, opaca, supra glabra, subtus peradpresse et minute lepidota, supra sublaevia, costa impressa; inflorescentia terminalis et axillaris, bipinnatim paniculata, 4–7 cm. longa, parce papillosa; flores 5-meri, subcorymbosi; pedicelli fructiferi 4.5–7 mm. longi, glabri; sepala ovata, 1.3–1.5 mm. longa, crassa, punctata, margine hyalina, minute erosa, apice rotundata; bacca subglobosa, 7–8 mm. diam.

VENEZUELA: Selvas alr. Sta. Elena, 1946, *Tobias Lasser 1570* (VEN, type; LL, fragment of type), arbusto, flores blancas y peciolos rojos.

The lateral veins are fine but discernible on lower leaf surface, inconspicuous above. The large leaves, conspicuously and obtusely denticulate, and the small axillary and terminal inflorescences are noteworthy features of *A. Lasseri*. It is a pleasure to dedicate this fine species to its collector.

**Ardisia longicaudata** Lundell, sp. nov. — Frutex, usque ad 5 m. altus; ramuli graciles, peradpresse furfuracei; folia petiolata, petiolo canaliculato, 4–7 mm. longo, furfuraceo; lamina dentata, membranacea, lanceolato-elliptica vel anguste oblongo-elliptica, 10–16 cm. longa, 3.8–5.3 cm. lata, apice longe caudato-acuminata, acumine usque ad 3 cm. longo, supra glabra, subtus novella parce lepidota, multinervosa; inflorescentia axillaris et terminalis, parva, paniculata, 1.5–5 cm. longa, parce lepidota; flores umbellati; pedicelli 4–6 mm. longi; sepala 5 vel 6, ovata, 1.2–1.4 mm. longa, erosa, hyalina, minute punctata; petala oblonga, 5–6 mm. longa, reflexa, lineatim picta, basi connata, apice obtusa, asymmetrica; stamina 4 mm. longa; filamenta 2.2 mm. longa; antherae basi affixae, lanceolato-oblongae, ca. 2.2 mm. longae, dorso pictae; ovarium glabrum, stylo 5 mm. longo; ovula pluriseriata.

COSTA RICA: Prov. San Jose, vicinity of El General, in forest, alt. 670 m., June, 1939, *A. F. Skutch 4370* (MO, type; F, US, isotypes), shrub 5 m., flowers white.

This collection was considered by C. V. Morton as a new variety of *A. compressa* H.B.K., but the relationship to that species appears remote. It is probable that *A. longicaudata* is nearer *A. guianensis* (Aubl.) Mez, differing in its larger caudate-acuminate leaves, larger 5- or 6-parted flowers, punctate anthers, and essentially glabrous inflorescences. Its anthers open at first by apical pores. In Central America, *A. longicaudata* and *A. guianensis* may be recognized immediately by their axillary and terminal inflorescences.

**Ardisia mammosa** Lundell, sp. nov. — Arbor parva, ca. 5 m. alta; ramuli crassiusculi, novelli furfuracei; folia petiolata, petiolo marginato, usque ad 7 mm. longo; lamina membranacea, integra, oblongo-elliptica, 10–20 cm. longa, 4.3–6.5 cm. lata, apice ignota, basi subrotundata, supra glabra, subtus novella lepidota, nigro-punctata; inflorescentia furfuracea,

tripinnatim paniculata, laxa, usque ad 30 cm. longa et lata; flores subumbellati, 5-meri, parce lepidoti; pedicelli 2–4 mm. longi; sepala libera, ovata vel ovato-elliptica, 2 mm. longa, acutiuscula, erosa; corolla 5 mm. longa, contorta; alabastra mammosa; petala basi coalita ca. 1.5 mm., asymmetrica, elliptico-oblonga, acutiuscula, nigro-punctata; filamenta ca. 1 mm. longa; antherae crassae, anguste ovatae, 2 mm. longae, apiculatae; ovarium glabrum, stylo ca. 5 mm. longo; ovula pluriseriata, numerosa.

NICARAGUA: summit of Mt. Mombacho, near Granada, in rain forest, alt. 1600 m., Dec. 24, 1940, *Verne Grant 869* (A, type; LL, fragment of type), tree about 5 m. high, 10 cm. diam., petals magenta.

Of affinity to *A. glanduloso-marginata* Oerst., *A. mammosa* has the same type of constricted corolla tube with stamens inserted at apex, and the rachis of the open, lax inflorescence is somewhat zigzag. The petals strongly contorted and constricted in bud into a conspicuous mammose apex clearly mark this most distinctive taxon.

**Ardisia matagalpana** Lundell, sp. nov. — Arbor parva, lepidota; ramuli graciles, novelli lepidoti; folia petiolata, petiolo 4–9 mm. longo, canaliculato; lamina coriacea, glabrata, opaca, integra vel subintegra, lanceolata vel anguste elliptica, 5–9.5 cm. longa, 2–3.7 cm. lata, apice acuminata vel subacuminata, acumine obtusiusculo, basi acuta; inflorescentia terminalis, anguste bipinnatim paniculata, lepidota, parce aurantiaco-punctata; flores 5-meri, subumbellati; pedicelli graciles, 4–6 mm. longi; sepala basi coalita, lobis late ovatis, 1–1.2 mm. longis, apice rotundatis, aurantiaco-punctatis; petala 6–6.5 mm. longa, basi coalita ca. 1 mm., anguste oblongo-elliptica, apice asymmetrica, aurantiaco-punctata; stamina 4.5–5 mm. longa; filamenta ca. 1.2 mm. longa, gracilia; antherae anguste lanceolato-oblongae, ca. 3.4 mm. longae, apice subtruncatae, minute apiculatae, epunctatae; ovarium glabrum, stylo 6 mm. longo; ovula 10, pluriseriata.

NICARAGUA: Dept. Matagalpa, road to La Fundadora, cloud forest area north of Sta. Maria de Ostuma, Cordillera Central de Nicaragua, alt. 1300–1500 meters, Feb. 1963, *Louis O. Williams, Antonio Molina R. and Terua P. Williams 24874* (F, type; LL, fragment of type), flowers white, tree 4–6 meters tall.

Primary and secondary branches of the inflorescences of *A. matagalpana* are sharply reduced, being only 2 to 6 mm. long. Other features of note are the lanceolate obtuse flower buds, thin sepals with few large orange glands, filaments free at apex of corolla tube, very slender almost linear anthers with large apical pores, and comparatively few large ovules. The petals are sparsely punctate with rather conspicuous orange glands.

**Ardisia minutiflora** Lundell, sp. nov. — Frutex; ramuli graciles, novelli lepidoti; folia parva, petiolata, petiolo 3–5 mm. longo, anguste marginato; lamina crenulata, chartacea, anguste oblanceolata vel oblongo-lanceolata, 6–9 cm. longa, 1.5–2.6 cm. lata, apice acuminata, basi subcuneata, supra glabra, subtus novella minute lepidota, opaca; inflorescentia terminalis, parva, 4–5 cm. longa, bipinnatim paniculata, lepidota; pedicelli 2–4 mm. longi; flores 4-meri, ca. 3.5 mm. longi, corymbosi; sepala libera, subintegra, lanceolato-elliptica, 1.2–1.4 mm. longa, apice anguste rotundata, aurantiaco-punctata; petala oblongo-elliptica, ca. 3.5 mm. longa, aurantiaco-lineata, symmetrica, apice rotundata, basi coalita; stamina ca. 2.8 mm. longa; filamenta glabra, ca. 1.3 mm. longa; antherae epunctatae, lanceolatae, ca. 1.5 mm. longae, apiculatae; ovarium glabrum, stylo ca. 2.7 mm. longo; ovula 11, 3-seriata; bacca globosa.

COLOMBIA: Uraba (Antioquia), margenes del Rio Mutata, alt. 90 100 m., Jan. 1950, *Lorenzo Uribe Uribe 2048* (US, type), arbustico, frutos rojos que se tornan morados con el tiempo.

*A. minutiflora* has very small 4-parted flowers, anthers which open at first by apical pores, reduced terminal inflorescences, and small oblanceolate crenulate leaves. Its relationship is with *A. angustifolia* Mez of Brazil.

**Ardisia nervosissima** Lundell, sp. nov. — Frutex, ramuli crassi, lepidoti; folia sessilia vel subsessilia, petiolo crasso, nullo vel ad 3 mm. longo; lamina membranacea, integra, oblanceolata vel oblanceolato-oblonga, 10–21 cm. longa, 3–7 cm. lata, apice acuminata, basi rotundata, novella lepidota, punctata, nervosissima; inflorescentia terminalis, anguste pinnatim paniculata, furfuracea, longe pedunculata; bracteae foliosae, ad 5 cm. longae, punctatae; flores 5-meri, subspicati, (ante anthesin) sessiles vel subsessiles; sepala crassa, ovato-orbicularia, 2–2.4 mm. longa, ciliata, nigro-punctata; alabastra ellipsoidea, glabra; petala basi coalita, elliptica, acuta, punctata; antherae crassae, lanceolato-oblongae, acutae; ovarium glabrum, stylo punctato.

PANAMA: Prov. Cocle, cloud forest, El Valle, 800 1000 m., June 23, 1967, *J. A. Duke 13150* (LL, type), shrub, flowers pinkish with reddish dots.

*A. nervosissima* is notable among the Myrsinaceae of Panama for its strongly nerved leaves which are suggestive of *Stylogyne Hayesii* Mez. The narrow pinnate panicles on long peduncles with foliaceous bracts, the bracteoles enclosing each flower bud, and the essentially sessile leaves amplexicaul at base are features by which *A. nervosissima* may be easily recognized. Unfortunately only flower buds are available, and these are subsessile. In the ovary dissected, the ovules are few.

**Ardisia platyphylla** Lundell, sp. nov. — Arbor parva, glabra, ca. 10 m. alta; ramuli crassiusculi, glabri; folia petiolata, petiolo marginato, usque

ad 0.8 cm. longo; lamina chartacea, glabra, integra, elliptica, oblongo-elliptica vel oblanceolata, 15–25 cm. longa, 5.8–10 cm. lata, apice subacuminata, acumine obtuso, basi acuta, punctata, costa supra impressa; inflorescentia terminalis vel lateralis, glabra, sessilis vel subsessilis, usque ad 11 cm. longa; pedicelli fructiferi crassiusculi, 1.5–5 mm. longi; flores 5-meri, subcorymbosi; sepala ovata, 1.2–1.5 mm. longa, apice obtuso-rotundata, punctata, crassiuscula, minute erosa; bacca subglobosa, ca. 7 mm. diam.

VENEZUELA: State of Monagas, near summit of Cerro Guacharo, above Guacharo Cave, near Guacharo, alt. 1500–1620 m., April 23, 1945, *Julian A. Steyermark 62324* (F, type; VEN, US, isotypes; LL, fragment of type), tree 30 ft. tall; leaves subcoriaceous, deep green above, paler green below; fruit 7 mm. in diameter.

The short pedicels are apical in the corymbs, the longer basal. Venation of the leaf blades is fine, almost equally evident on both surfaces, and the primary nerves anastomose near the margin.

**Ardisia polyantha** Lundell, sp. nov. — Frutex vel arbor parva, usque ad 5 m. alta; ramuli crassiusculi, novelli parce lepidoti; folia glabra, concolora, petiolata, petiolo crasso, marginato, 5–10 mm. longo; lamina chartacea, punctata, integra, elliptica vel oblanceolato-elliptica, 13–18 cm. longa, 5.5–7 cm. lata, apice subabrupte acuminata, basi acuta, subtus costa elevata, utrinque multinervosa; inflorescentia terminalis, paniculata, glabra vel parce lepidota, ca. 10 cm. longa; flores umbellati vel subcorymbosi, 5-meri; pedicelli 5–9 mm. longi; sepala late ovata vel suborbicularia, 1.5 1.7 mm. longa, apice rotundata, minute ciliolata, aurantiaco- et nigro-punctata; petala elliptico-oblonga, 5 mm. longa, basi connata ca. 1.3 mm., parce aurantiaco-punctata; stamina 6 mm. longa; filamenta ca. 3 mm. longa; antherae crassae, lanceolatae, apice rotundatae vel subtruncatae, epunctatae; ovarium ovoideum, stylo 5 mm. longo; ovula pluriseriata, parva, numerosa.

COSTA RICA: Prov. San Jose, in dense oak and bamboo forest near Laguna de la Escuadra, northeast of El Copey, alt. 2000 2200 meters, Dec. 16, 1925, *Paul C. Standley 41934* (US, type), shrub or tree 8–15 ft.; flowers bright pink, showy.

*A. polydactyla* Lundell and *A. copeyana* Standl. appear to be related. The combination of large stamens, long pedicels and small rounded sepals distinguish *A. polyantha*. In the species some petals are notched and asymmetrical at apex, others symmetrical. The sepals have a few small black glands apically, otherwise the flowers are orange-punctate. As in related species, the anthers are dehiscent by apical pores.

**Ardisia polydactyla** Lundell, sp. nov. — Arbor 12 m. alta, ramulis crassiusculis, subteretibus, glabris; folia magna, petiolata, petiolo crasso, marginato, 0.7–1.5 cm. longo; lamina chartacea, glabra, oblongo-elliptica, vel anguste oblongo-elliptica, 16–23 cm. longa, 6–8 cm. lata, apice sub-

abrupte acuminata, basi subacuminata vel acuta, integra, nervis lateralibus prominulis; inflorescentia terminalis, pyramidalis, usque ad 17 cm. longa, multiflora, parce lepidota; flores umbellati vel subcorymbosi; pedicelli (3) 5–12 mm. longi; sepala elliptica vel ovato-elliptica, 2 (3) mm. longa, minute aurantiaco-punctata, apice rotundata; petala oblongo-elliptica, 4.5–5.5 mm. longa, basi connata, apice parce aurantiaco-punctata, rotundata; filamenta ca. 1.5 mm. longa; antherae crassae, lanceolato-oblongae, 2–2.5 mm. longae, apice emarginatae; ovarium ovoideum, glabrum, stylo 4.5–6 mm. longo; ovula pluriseriata, numerosa.

COSTA RICA: Prov. San Jose, vicinity of El General, in forest, alt. 950 meters, Dec. 1935, *Alexander F. Skutch 2178* (US, type; MO, isotype), slender tree, 12 m. high, 4 in. diam., flowers white with yellow stamens, fragrant; vicinity of El General, alt. 1160 meters, Jan. 1936, *Skutch 2384* (MO, US), forest tree 12 m. high, flowers white, stamens yellow; San Pedro de San Ramon, alt. 1075 m., Dec. 4, 1925, *A. M. Brenes (606)4821* (F), small tree, 3–5 m. high, flowers white. Prov. Olajuela, Canton Alfaro Ruiz, Guadalupe, edge of forest, alt. 1500 m., Dec. 28, 1939, *Austin Smith P2211* (US), tree, 6 m. (flowers 4- or 5-parted, sepals up to 3 mm. long).

The leaf buds are closely appressed furfuraceous, and the inflorescence very sparsely so, otherwise the plant is glabrous. The anthers are dehiscent by apical pores. This middle altitude species appears to have affinity to *A. Standleyana* Allen of the lowlands, which has sessile leaves, but similar small anthers. The specific name refers to the many-branched inflorescence.

**Ardisia Proctori** Lundell, sp. nov. — Arbor parva, glabra; ramuli crassi; folia glabra, petiolata, petiolo marginato, crasso, ca. 1 cm. longo; lamina integra, discolora, glabra, chartacea, oblonga vel lanceolato-oblonga, 20–24 cm. longa, 5.3–7.2 cm. lata, apice subabrupte acuminata, basi anguste rotundata; inflorescentia parva, axillaris, sessilis, tripinnatim paniculata, glabra, 3–6 cm. longa; pedicelli fructiferi 4–6 mm. longi; flores 5-meri, umbellati; sepala ovata vel ovato-triangularia, ca. 1.5 mm. longa, hyalina, minute erosa, apice late obtusa; ovarium glabrum, stylo ca. 4.5 mm. longo.

NICARAGUA: Dept. Bluefields, primary rain forest, ca. 5 km. NE of Rama, alt. sea-level to 150 m., Rio Escondido, April 4, 1966, *George R. Proctor, Gayle C. Jones, & Lynden Facey 27313* (LL, type), tree 8 m., fruits green.

The entire large oblong leaves, sessile small axillary inflorescences, and hyaline sepals sparingly dark orange-red punctate well-mark this species. The leaves, paler beneath, have numerous fine primary veins which are clearly discernible on the lower surface, but rather obscure above.

ARDISIA PULVERULENTA Mez, Pflanzenreich IV. 236: 88. 1902.

PANAMA: Prov. Veraguas, *B. C. Seemann 1093* (K, lectotype).

In the *Flora of Guatemala* (Fieldiana Bot. 24 (8): 146. 1966), I included *A. pulverulenta* Mez in the synonymy of *A. nigropunctata* Oerst. on the basis of Field Museum type photograph 31990. This type photograph appears to be mislabeled for its shows *Friedrichstahl 612* on the photograph, but on the accompanying label the collection is given as *Friedrichstahl 613* which is cited by Mez in the original description of *A. pulverulenta* (loc. cit.) from Guatemala. The species shown in the type photograph is *A. nigropunctata*. Not until the lectotype at Kew was studied did I discover that the Seemann specimen represents a very distinctive species notable for its indument consisting of exceptionally large red-brown scales.

*Ardisia Dukei* Lundell, recently described from Panama, appears to be a related species. Both have very short recurved pedicels, and large lepidote leaves.

**Ardisia rufidula** Lundell, sp. nov. — Arbor (?); ramuli crassiusculi, novelli minutissime rufo-tomentelli; folia petiolata, petiolo 7–9 mm. longo, marginato; lamina integra, coriacea, glabra, opaca, oblanceolata vel oblanceolato-elliptica, 8–11.5 cm. longa, 3.3–4.5 cm. lata, apice subacuminata, acumine obtuso, basi acuta; inflorescentia 2- vel 3-pinnatim paniculata, laxa, usque ad 15 cm. longa, minutissime rufo-puberula; flores 5- vel 6-meri, racemosi; pedicelli graciles, 4–7 mm. longi; sepala late ovata, 3–3.5 mm. longa, ciliata, nigro-punctata, apice rotundata, integra; corolla ca. 8.7 mm. longa; petala oblonga vel oblongo-elliptica, basi coalita ca. 2.5 mm., glandulosa, nigro-punctata; stamina ca. 5.5 mm. longa; filamenta 2.2–2.8 mm. longa; antherae crassae, lanceolato-triangulares, ca. 3.2 mm. longae, acutae, epunctatae; ovarium glabrum, stylo 5–6 mm. longo.

COLOMBIA: Alban, 1933, *Perez Arbelaez 2197* (US, type; LL, fragment of type).

Only dried flowers past anthesis and immature fruits are available. The corolla tube is constricted above, with the stamens inserted about 1 mm. above base. The filaments are expanded below. Dehiscence of the anthers is by apical pores.

Other species of this group, with similar indument, are *A. Schlimii* Mez, *A. scoparia* Mez, and *A. sapida* Cuatr. The Kew isotype of *A. Schlimii* (*Schlim 149*) has flowers with ciliate thick sepals about 2 mm. long, stamens 4.5 mm. long, filaments 2 mm. long and subequaling anthers, and corolla tube glandular within. *A. sapida* is larger than the other species in all parts, the leaves measuring up to 20 cm. long, 7 cm. wide. *A. scoparia*, of which I have not seen the type, is described as having glabrous branchlets and shorter pedicels.

The host of species of this relationship in the Subgenus *Pickeringia* (Nutt.) Mez differ in minor characteristics, and form an exasperating

group to delimit, due in part to the very limited flowering material available for study.

**Ardisia siltepecana** Lundell, sp. nov. — Arbor parva, 5 m. alta; ramuli graciles, novelli adpresse ferrugineo-lepidoti vel furfuracei; folia petiolata, petiolo lepidoto, canaliculato, 5–10 mm. longo; lamina coriacea, crenulata, glabrata, oblanceolata, 8.5–17 cm. longa, 3.5–5.8 cm. lata, apice acuminata, basi acuta vel subacuminata, subtus venosissima, pallidiora, supra sublaevia; inflorescentia terminalis, bipinnatim paniculata, pyramidalis, usque ad 8.5 cm. longa, novella furfuracea; flores 5- vel raro 4-meri, ca. 6.5 mm. longi, subumbellati vel subcorymbosi; pedicelli graciles, 4–6 mm. longi; sepala ovata, 1.3–1.5 mm. longa, minute erosa, nigro-punctata, apice rotundata; petala oblongo-elliptica, ca. 6.5 mm. longa, subsymmetrica, nigro-punctata, basi breviter coalita; stamina 5 mm. longa; filamenta 1.5 mm. longa; antherae crassae, epunctatae, linearioblongae, 3.7–4 mm. longae, apice subtruncatae; ovarium glabrum, stylo ca. 5 mm. longo, punctato; ovula pluriseriata, numerosa.

MEXICO: Chiapas, Cascada, near Siltepec, in advanced forest, alt. 1600 m., March 1, 1945, *Eizi Matuda 5161* (LL, type), tree, 5 m. high.

This mountain species has lepidote branchlets, crenulate leaves coriaceous and conspicuously veined beneath, sepals rather densely gland dotted, petals with few mostly apical but conspicuous black glands and linear-tubular anthers with large flaring apical pores.

**Ardisia subcuneifolia** Lundell, sp. nov. — Arbor parva, glabra; ramuli crassi; folia petiolata, petiolo marginato, usque ad 1 cm. longo, crassiusculo; lamina coriacea, concolora, punctata, oblanceolata, 11–18 cm. longa, 4.4–5.7 cm. lata, apice obtusa, basi subcuneata; inflorescentia terminalis, bipinnatim paniculata, subracemosa, glabra, ca. 15 cm. longa; pedicelli crassi, 1.5–3 mm. longi; flores 5-meri; sepala libera, late ovata, 3 mm. longa, crassa, ciliata, nigro-punctata, apice rotundata, intus glandulosa; bacca ovoidea, nigro-punctata.

PANAMA: Prov. Darien, near Refugio, 15 21 miles north of Santa Fe, elev. ca. 30 m., Feb. 16, 1967, *J. A. Duke 10270* (LL, type), hardwood tree, 7 in. diam.

*A. subcuneifolia* appears to have affinity to *A. foetida* Willd., my interpretation of the latter being based on *Linden 890* (F), cited by Mez in his 1902 monograph as this species. In *A. subcuneifolia* the calyx is only half as large, and more conspicuously ciliate.

**Ardisia terrabana** Lundell, sp. nov. — Frutex; ramuli crassiusculi, novelli adpresse lepidoti; folia petiolata, petiolo glabro, canaliculato, 5–10 mm. longo; lamina glabra, subcoriacea, obscure crenulato-denticulata, elliptico-lanceolata vel oblongo-lanceolata, vel raro obovata, 7.5–15 cm. longa, 3.3–5 cm. lata, apice acuminata, basi acuta vel subacuminata,

utrinque subreticulata, nigro-punctata; inflorescentia terminalis, bipinnatim paniculata, lepidota; flores 5-meri, ca. 5 mm. longi, corymboso-racemosi vel racemosi; pedicelli 6–7.5 mm. longi, graciles, parce lepidoti; sepala oblongo-elliptica vel ovato-elliptica, 1.2–1.5 mm. longa, subintegra, late obtusa, dense aurantiaco-punctata, parce lepidota; petala rosea, oblongo-elliptica, 5 mm. longa, basi coalita ca. 1 mm., symmetrica, apice rotundata, aurantiaco-punctata; stamina 3.5 mm. longa; filamenta ca. 1.3 mm. longa, crassa; antherae 2 mm. longae, anguste triangulares, crassae, epunctatae, apiculatae; ovarium glabrum, stylo ca. 4 mm. longo; ovula pluriseriata.

COSTA RICA: Prov. Puntarenas, Canton de Osa, vicinity Palmar Norte, Rio Terraba, sea level, April 11, 1949, *Paul H. & Dorothy Allen 5263* (MO, type; LL, fragment of type; GH, isotype), shrub 6 ft., flowers pink.

The subcoriaceous leaves are veiny on both surfaces and conspicuously black punctate and with a submarginal line of glands. Flaring apical pores of the anthers, sparsely punctate petals, and stamens inserted about 0.5 mm. above base of corolla tube are other distinguishing features.

*A. terrabana* has affinity to *A. geniculata* Lundell of Panama, which has membranaceous leaves, not black punctate, and smaller sepals. In *A. geniculata* the flowers are corymbose.

**Ardisia Whitei** Lundell, sp. nov. — Arbor parva; ramuli crassiusculi, novelli peradpresse lepidoti; folia petiolata, petiolo marginato, 4–7 mm. longo; lamina integra, glabra, subcoriacea, discolora, elliptica vel oblongo-elliptica, 6–13 cm. longa, 3–5.5 cm. lata, apice subabrupte acuminata, acumine obtusiusculo, basi acutiuscula; inflorescentia terminalis, pyramidalis, multiflora, usque ad 11 cm. longa, basi parce lepidota; flores umbellati vel subcorymbosi, 5-meri; pedicelli 3–4 mm. longi; sepala parva, ovata, 1–1.2 mm. longa, apice rotundata, aurantiaco-punctata; petala elliptico-oblonga, 5 mm. longa, asymmetrica, apice minute aurantiaco-punctata, basi connata ca. 1.4 mm.; stamina 5 mm. longa; filamenta ca. 2 mm. longa; antherae lanceolatae, 2.8 mm. longae, epunctatae; ovarium ovoideum, stylo 5.5 mm. longo; ovula pluriseriata, parva, numerosa.

PANAMA: R. Chiriqui Viejo valley, in bambita woods, Mar. 23, 1938, *Gene White 48* (LL, type; MO, isotype), tree 8 ft. tall, *"manglia."*

**Ardisia zuliana** Lundell, sp. nov. — Arbor parva, ca. 5 m. alta, glabra; folia glabra, longe petiolata, petiolo 1.7–3 cm. longo; lamina sublaevia, opaca, oblanceolata vel oblongo-oblanceolata, 15–20 cm. longa, 5.5–7 cm. lata, apice obtusa, basi acuta, minute guttata; inflorescentia terminalis, bipinnatim paniculata, glabra, laxa, 10–17 cm. longa; flores 5-meri, subspicati; pedicelli fructiferi crassiusculi, 1–2 (3) mm. longi; sepala libera,

late ovata, 6–6.7 mm. longa, intus basi minute glandulosa, symmetrica, ciliolata, apice rotundata, lineato-picta; ovarium glabrum, stylo 9 mm. longo; bacca globosa, usque ad 8 mm. diam.

VENEZUELA: Estado Zulia, 200 m., Aug. 8, 1957, *E. Medina 913* (VEN, type; LL, fragment of type), arbolito de flores blancas.

Outstanding features of *A. zuliana* are the long petioles and large sepals which halfway enclose the fruits. The large open few-branched panicles have basal branches up to 15 cm. long.

A second fruiting collection, *Tobias Lasser 2581* (VEN), was made in Sabanas de Machiques, Estado Zulia in January, 1948. It has black fruits.

**Cybianthopsis** (Mez) Lundell, gen. nov. *Grammadenia*, subgen. *Cybianthopsis* Mez in Urban, Symb. Antill. 2: 425. 1901.

The umbellate inflorescence with long filiform peduncles and pedicels, together with perfect and staminate flowers, and petiolate leaves clearly mark *Cybianthopsis* as distinct from *Grammadenia*.

**Cybianthopsis Sintenisii** (Urban) Lundell, comb. nov. *Ardisia Sintenisii* Urban, Symb. Antill. 1: 381. 1899. *Grammadenia Sintenisii* (Urban) Mez in Urban, Symb. Antill. 2: 425. 1901.

PUERTO RICO: Sierra de Luquillo in regione superiore montis Jimenes, July 9, 1885, *P. Sintenis 1365* (F, isotype); Luquillo Mountains, July 12, 1902, *Percy Wilson 148* (F).

With the removal of *C. Sintenisii*, the genus *Grammadenia* is a natural group of species characterized by sessile leaves, racemose axillary inflorescences with short pedicels, and small flowers with sessile or subsessile ovate anthers usually wider than long. Although Mez characterized the flowers as hermaphrodite in his subgenus *Eugrammadenia* (in Urban, Symb. Antill. 2: 425. 1901), the flowers in at least one species are functionally dioecious and there is evidence that this condition prevails in other species. In *G. acuminata* Lundell, the pistillate flowers have stamens reduced to staminodia, and the ovules in staminate flowers appear to be abortive.

**Gentlea Austin-Smithii** (Lundell) Lundell, comb. nov. *Ardisia minor* Standl., Jour. Wash. Acad. 17: 522. 1927, non King & Gamble, 1906. *Ardisia Austin-Smithii* Lundell, Contr. Univ. Mich. Herb. 7: 36. 1942. *Gentlea minor* (Standl.) Lundell, Wrightia 3: 104. 1964.

PANAMA: Prov. Chiriqui, Bajo Chorro, Boquete District, rain forest, elev. 6000 ft., March 10, 1938, *M. E. Davidson 388* (F, MO, US), shrub, 10 15 ft. high, flowers white; Boquete District, Cerro Horqueta, cloud forest, alt. 6500 ft., April 26, 1940, *Christine & Wolfgang von Hagen 2044* (MO), tree, 12 ft., fruit dark purple, common.

Described from Costa Rica, these are the first records for Panama. The Davidson collection has abnormal flowers. *Ardisia minor* Standl. is an illegitimate name, being antedated by *A. minor* King & Gamble.

**Gentlea micranthera** (Donn. Sm.) Lundell, comb. nov. *Ardisia micrantha* Donn. Sm., Bot. Gaz. 14: 27. 1889, non H.B.K., 1818. *Parathesis micranthera* Donn. Sm., Bot. Gaz. 18: 205. 1893, non *Ardisia micranthera* Pitard, 1930. *Ardisia staminosa* Lundell, Wrightia 3: 78. 1963.

*Ardisia micrantha* Donn. Sm. is an illegitimate name, being a later homonym of *A. micrantha* H.B.K. In transferring this species to *Parathesis*, Donnell Smith renamed it, based on the same type, *Parathesis micranthera* Donn. Sm. This is a new name and legitimate, hence must be used when the species is transferred to *Gentlea*. My earlier combination, *Gentlea micrantha* (Donn. Sm.) Lundell, is illegitimate. I am indebted to C. V. Morton for bringing this to my attention.

**Gentlea Standleyi** Lundell, sp. nov. – Frutex, ramulis juventate furfuraceo-lepidotis; folia glabra, petiolata, petiolo marginato, 2.5–5 mm. longo; lamina chartacea vel subcoriacea, anguste elliptica vel oblongo-elliptica, 3 6.5 cm. longa, 1.7–2.8 cm. lata, apice subacuminata, acumine acutiusculo, basi acuta, margine integra; inflorescentia glabra, terminalis, paniculata, usque ad 5.5 cm. longa, 5.5 cm. lata; pedicelli fructiferi 2–5 mm. longi; sepala ovato-oblonga, 1.3–1.5 mm. longa, apice rotundata; fructus globosus.

COSTA RICA: Provincia de Heredia, Cerros de Zurqui, northeast of San Isidro, wet forest, alt. 2000–2400 meters, March 3, 1926, *Paul C. Standley & Juvenal Valerio 50613* (US, type; LL, isotype), shrub 10 ft., fruit and rachis dark red.

Only the tips of the branchlets and the leaf buds are furfuraceous, the plant is glabrous otherwise in the fruiting stage. The elliptic leaves with rather conspicuous lateral veins which ascend at a wide angle are different in aspect from those of *G. Austin-Smithii* (Lundell) Lundell, the species to which *G. Standleyi* appears to have affinity. Unfortunately only a single fruiting collection of the species is available.

**Grammadenia acuminata** Lundell, sp. nov. – Frutex, ramulis crassis, glabris; folia sessilia, chartacea, oblanceolata vel spatulato-oblanceolata, 4–8 cm. longa, 0.8–2.2 cm. lata, apice acuminata, basi attenuata et minute auriculata, lamina basi lineis manifestis atris picta; nervus marginalis foliis manifestus; inflorescentia axillaris, racemosa, 3–5.5 cm. longa, parce papillosa; pedicelli 2–2.8 mm. longi; sepala ovata, ca. 0.8 mm. longa, acuta, ciliolata, nigro-picta; petala dextrorsum tegentia, nigro-picta, ovato-elliptica, ca. 1.8 mm. longa, basi connata; stamina 5, abortiva, nigro-punctata; ovarium glabrum, oblatum; placenta 2-ovulata.

COSTA RICA: Prov. San Jose, slopes of Poas Volcano, vicinity of Vara Blanca, 7000 ft., Nov. 23, 1949, *Paul H. Allen 5396* (US, type; F, isotype), epiphytic shrub, 2 ft., flowers pinkish lavender.

The acuminate leaves are black-lineate at base, and between the marginal vein and the hyaline margin there is a conspicuous line of small reddish or red-black glands. The leaf is glabrous beneath, but papillate above at first along the midvein. The bracts are membranaceous, ovate-elliptic and acute, black punctate with short lines and dots, and subequal the pedicels at anthesis. Both the sepals and petals are conspicuously black punctate with small and round or elongated glands. In the type, the stamens are abortive, and reduced to staminodia. The style equals the ovary.

Other collections of the species from Costa Rica are *A. F. Skutch 3766* (K, US), *Paul C. Standley & Juvenal Valerio 50753* (US), *52198* (US), and *52257* (US). In *Skutch 3766* and *Standley & Valerio 52198*, the flowers appear to be perfect. The anthers are subsessile, and have 3 to 5 small round glands dorsally. The placenta has 2 or 3 ovules. The acuminate leaves, conspicuously punctate bracts, sepals and petals, and the pistillate and perfect flowers are distinguishing features of *G. acuminata*.

In *G. costaricana* (Hemsl.) Mez, dextrorse, quincuncial and imbricate petals have been found in the same inflorescence, so the petal pattern is of no diagnostic value in *Grammadenia*.

**Grammadenia linearifolia** Lundell, sp. nov. — Frutex, ramulis crassiusculis, glabris; folia glabra, chartacea, sessilia, linearia vel anguste oblanceolato-linearia, 5.5–9 cm. longa, 7–12 mm. lata, basi rotundata, apice acutiuscula, apiculata, parce aurantiaco-punctata; inflorescentia axillaris, gracilis, racemosa, usque ad 6.5 cm. longa, parce glanduloso-puberula, bracteis membranaceis, ovatis vel oblongo-ellipticis, 1–2 mm. longis, aurantiaco-punctatis; pedicelli 2.5–4 mm. longi; sepala ovato-triangularia, ca. 0.7 mm. longa, aurantiaco-punctata; petala imbricata, late ovata, 1.2–1.4 mm. longa, aurantiaco-punctata; antherae subsessiles, parvae, dorso aurantiaco-punctatae; ovarium punctatum; ovula 2.

PANAMA: Bocas del Toro, Robalo Trail, northern slopes of Cerro Horqueta, alt. 6000-7000 ft., Aug. 6, 1947, *Paul H. Allen 4803* (MO, type), shrub 12 ft. in tops of giant trees, flowers pale greenish-yellow.

A nondescript species of which only a single twig is available. Noteworthy are the long essentially linear leaves, almost as wide at base as medially, the long slender racemes with rather long pedicels, and the orange glands of all parts. The margin of the leaves is hyaline, and the submarginal vein well developed.

This is the only collection of *Grammadenia* known from Panama, and the status of *G. linearifolia* will remain uncertain until additional material becomes available. All the Central American species are closely related.

**Grammadenia minor** Lundell, sp. nov. — Frutex, ramulis crassis, glabris, dense foliosis; folia parva, subcoriacea, opaca, glabra, sessilia, oblanceolata vel oblongo-oblanceolata, 1.5–3.5 cm. longa, 0.5–0.8 cm. lata, basi subattenuata, apice obtusa, apiculata, aurantiaco-punctata; inflorescentia axillaris, racemosa, parva, ca. 2 cm. longa, pauciflora, parce glanduloso-puberula, bracteis 1–1.4 mm. longis, acutis; pedicelli fructiferi usque ad 2 mm. longi; sepala ovata, 0.6–0.8 mm. longa, acuta, aurantiaco-punctata, minute ciliolata; fructus subglobosus, 3 mm. diam., aurantiaco-punctatus.

COSTA RICA: Prov. San Jose, "the bog," elfin cloud forest area north of Cerro de la Muerte, Cordillera de Talamanca, alt. 2600 m., Feb. 1, 1963, *Louis O. Williams, Alfonso Jimenez M. & Terua P. Williams 24167* (F, type; LL, fragment), shrub in bog in dense shade.

The small leaves crowded at the ends of branches, the orange-punctate leaves, bracts, sepals, and fruits, and the reduced racemes with small bracts and short pedicels appear to distinguish *G. minor*. In aspect it is a diminutive form of *G. costaricana* (Hemsl.) Mez, but amply distinct.

**Parathesis Breedlovei** Lundell, sp. nov. — Frutex usque ad 1 m. altus, ramulis gracilibus, dense et minute rufo-tomentellis; folia parva, petiolata, petiolo 3–10 mm. longo, rufo-tomentello; lamina membranacea, pellucido-punctata, subintegra, oblanceolata vel oblanceolato-elliptica, 4.5–9 cm. longa, 1.2–3.1 cm. lata, apice subabrupte acuminata, basi cuneata, supra novella papillata; inflorescentia minute rufo-tomentella, terminalis, corymboso-paniculata, 3–5 cm. longa; pedicelli 3–6 mm. longi; sepala parva, triangularia, 0.5–0.8 mm. longa, acuta; petala ca. 4 mm. longa, intus glabra; stamina 2.3 mm. longa; filamenta 1.4 mm. longa; antherae 1.5 mm. longae, nigro-punctatae; ovarium parvum, apice rufo-puberulum, stylo ca. 4 mm. longo; ovula 4, uniseriata.

MEXICO: Chiapas, Municipio of Jitotol, steep wooded slope on the bank of the Rio Hondo 4 miles north of Jitotol on road to Pueblo Nuevo Solistahuacan, elev. 5500 feet, May 29, 1965, *D. E. Breedlove 10131* (LL, type), flowers red, 3 feet tall.

*P. Breedlovei* is closely related to *P. microcalyx* Donn. Sm., to which I first referred the type collection. *P. microcalyx*, known from Costa Rica, Nicaragua, and Panama, is notably different in having larger chartaceous leaves with minute bizonal appressed pubescence on lower surface and petioles up to 2 cm. long. The leaves of *P. Breedlovei* are very thin, and essentially glabrous beneath at maturity except along

the costa. In *P. Breedlovei* the larger flowers with fewer ovules are significant features distinguishing this species.

A second collection from Chiapas, *Lathrop 6684* (LL), collected in cloud forest at elevation of 6200 feet, is essentially like the type. *P. microcalyx* grows at lower elevations, often near sea level.

**Stylogyne oaxacana** Lundell, sp. nov. — Frutex; ramuli graciles, glabri; folia glabra, petiolata, petiolo canaliculato, 1–1.5 cm. longo; lamina elliptica vel obovato-elliptica, 6–15 cm. longa, 4–7.8 cm. lata, apice abrupte breviter acuminata vel rotundata et acutiuscula, integra, membranacea vel subchartacea, perpunctata; flores dioici, 5-meri, corymbosi; inflorescentia mascula glabra, axillaris vel terminalis, 2- raro 3-pinnatim paniculata, laxa, usque ad 10 cm. longa; pedicelli usque ad 7 mm. longi, graciles; alabastra ellipsoidea, ca. 6 mm. longa, aurantiaco-punctata; sepala ovato-elliptica, 1.3–1.75 mm. longa, apice rotundata; petala elliptica, 5.5 mm. longa, basi coalita ca. 1.5 mm., aurantiaco-lineata; stamina 3.5 mm. longa; filamenta ca. 2 mm. longa; antherae 2 mm. longae, epunctatae; ovarium abortivum, stylo ca. 0.75 mm. longo; ovula 4, erecta.

MEXICO: Oaxaca, District of Tuxtepec, Chiltepec and vicinity, in llanos, alt. about 20 m., July 12, 1940, *G. Martinez-Calderon 19* (LL, type; UC, US, isotypes), flowers white.

Pistillate flowers are not known, but two collections from the same locality, *Martinez-Calderon 541* (LL, UC, US) and *650* (LL), are in young fruit. The inflorescences are small, terminal, sessile, congested, up to 6 cm. wide. The style is up to 3 mm. long, and the sepals appear to be smaller than in the staminate type collection.

WEIGELTIA SCHLIMII (Hook.f.) Mez, Pflanzenreich IV. 236: 291. 1902. *Comomyrsine Schlimii* Hook.f., Benth. & Hook.f., Gen. 2: 644. 1876. *Ardisia spectabilis* Standl., Publ. Field Mus. Bot. 18: 893. 1938.

NICARAGUA: in tall forest near Rio San Juan at "El Relos," ca. midpoint between El Castillo and Delta of San Juan, alt. 0–50 m., March 23, 1961, *George S. Bunting & L. Licht 775* (F), slender tree ca. 3 m. tall, leaves at first purple-veined beneath, peduncles purple, buds brownish, opening tan, fragrant.

COSTA RICA: Cataratas (Los Angeles) de San Ramon, April 17, 18 & 19, 1935, *A. M. Brenes 20530* (F, type of *Ardisia spectabilis* Standl.). Prov. Limon, forest near farmhouse at Finca Castilla, alt. 30 m., July 24, 1936, *C. W. Dodge & V. F. Goerger 9283* (F, MO), corolla pecan brown without, cinnamon buff within.

PANAMA: Prov. Panama, Cerro Campana, alt. 800 m., Jan. 7, 1947, *Paul H. Allen 3965* (LL, MO), shrub, 2 m., flowers dull purple.

COLOMBIA: Prov. Ocaña bei Eullanada, alt. 1300 m., May, 1846–1852, *L. Schlim 686* (F, isotype); Dept. Boyaca, high thick forest, El Umbo region, alt. 3000 ft., *A. E. Lawrence 530* (LL), shrub 6–10 ft. high, flowers pale brown.

The collections from Nicaragua and Panama have slightly smaller flowers, and anthers which appear to be eglandular. The leaves are either subentire or conspicuously serrulate with sharp incurved teeth. In *Schlim 686*, which may be considered the type collection, some of the flowers are 4-merous. *W. Schlimii* is segregated by Mez under the subgenus *Triadophora* on the basis of its 3-merous flowers!

YUNCKERIA OVANDENSIS (Lundell) Lundell, Wrightia 3: 112. 1964. *Ardisia ovandensis* Lundell, Contr. Univ. Mich. Herb. 4: 21. 1940.

HONDURAS: 1852, *Hjalmarsson* (S).

This is the first recorded collection of the genus, and the first record of *Y. ovandensis* in Central America. The specimens from Honduras agree closely with those from Chiapas, except that the flowers in the Hjalmarsson collection have somewhat thicker sepals up to 2 mm. long, free part of filaments only 1 to 1.5 mm. long, and anthers more attenuate to the apex.

# SOME ADDITIONS AND CORRECTIONS TO THE FLORA OF TEXAS – VI

Donovan S. Correll

When I published my paper number V of this series in which are enumerated some additions and corrections to the flora of Texas I thought that it would be the last.[1] However, since a delay developed that prevented our going to press with Marshall Johnston's and my completed *Manual of the Vascular Plants of Texas*, time was available to continue the examination more closely of some of the yet unstudied collections. This brief paper is the result of this further research. It is also a witness to the fact that no matter how hard one strives to make this type of work complete it is just humanly impossible to accomplish such a task. This project has been supported, in part, by a grant from National Science Foundation (GB-3138). All of the specimens cited, unless otherwise noted, are in the Lundell Herbarium (LL) of Texas Research Foundation. I wish to acknowledge the help of my wife, Dr. Helen B. Correll, in the preparation of this paper.

**Cymodocea filiforme** (Kütz.) Correll, comb. nov.

*Cymodocea manatorum* Aschers. in Sitz.-Ber. Ges. Naturf. Freund. Berl. 19. 1868.

*Syringodium filiforme* Kütz. in Hohenack. Alg. Marin. Sicc. 9. No. 426. 1860 (cf. Dandy & Tandy in Jour. Bot. Lond. 77: 114–116. 1939).

The above combination is apparently necessary in order to accommodate this marine species which is common along the Texas coast.

Clematis dioscoreifolia Lévl. & Van. in Repert. Sp. Nov. 7: 339. 1909.

TEXAS: Hardin County, just west of Silsbee on Farm Road 327, climbing over shrubs and small trees on edge of woods, August 9, 1968, *D. S. Correll & Helen B. Correll 36013*.

This species, a native of Japan, is occasionally cultivated from which it often escapes. It is superficially similar to our native species, *C. virginiana* L., of East Texas. The thicker leaflets that are nearly always entire, however, readily separate it from that species.

Potentilla paradoxa Nutt. ex Torr. & Gray, Fl. N. Am. 1: 437. 1840.

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[1]Some Additions and Corrections to the Flora of Texas. Wrightia 3: 123–140. 1965; Some Additions and Corrections to the Flora of Texas – II. Brittonia 18: 306–310. 1966; also III. Rhodora 68: 420–428. 1966; also IV. Madroño 19: 187–192. 1968; also V. Wrightia 4: 25–28. 1968.

TEXAS: Randall County, moist sandy loam on bank of lake, Buffalo Lake National Wildlife Refuge, 2 miles south of Umbarger; flowers yellow, July 24, 1967, *John R. Crutchfield 3575*.

This typically far northern species is new to Texas. It superficially resembles *P. rivalis* Nutt., also found in the Texas Panhandle, but differs from that species in its 5- to several-foliolate leaves and longitudinally ribbed achenes that have a corky protuberance on their ventral suture.

**Anoda pygmaea** Correll, sp. nov.

Planta circa 5 cm. alta, paene acaulis, ex foliorum rosula et ex uno flore pedunculata (vel pluribus) grandi pro plantae amplitudine constans; planta pilis stellatis dense obtecta; petioli validi, ad 3 cm. longi; laminae crassiusculae, ovatae vel ovato-ellipticae, plerumque petiolis parum longiores ad circa 2 cm. latae, rotundatae vel parum basi cordatae, apice obtusae, grosse crenato-serratae, venis primariis prominentibus; pedunculi per anthesin tenues, per fructum accrescentes ad circa 2 cm. longi; sepala 5, ad circa ½ longitudinis coalita discum concavum 2.5–3 cm. latum facientia, lobis expansis late triangularibus et acutis, intra pilis simplicibus; petala probabiliter flavida, obovato-oblanceolata, circa 15 mm. longa et 8 mm. lata supra medium; fructus 12 carpelorum radiatorum discus complanatus; carpella circa 5 mm. longa, conspicue rostrata et dorsale calcarata, extra stellato-pilosa, lateribus vel septis grosse reticulato-favosis; semina porphyrea praeter aliquot cilia circum hilum glabra.

Plant about 5 cm. high, essentially acaulescent, consisting of a rosette of leaves and one or more pedunculate flowers that are large for the plant, densely covered with stellate hairs; petioles stout, to 3 cm. long; blades thickish, ovate to ovate-elliptic, usually slightly longer than the petioles, to about 2 cm. wide, rounded to slightly cordate at base, obtuse at apex, coarsely crenate-serrate, the primary veins prominent; peduncles slender in flower, becoming stout in fruit, to about 2 cm. long; sepals 5, united for about half their length to form a concave disc 2.5–3 cm. wide, the spreading lobes broadly triangular and acute, with simple hairs on the inner surface; petals probably (?) yellowish, obovate-oblanceolate, about 15 mm. long and 8 mm. wide above middle; fruit a flattened disc of 12 radiating carpels; carpels about 5 mm. long, conspicuously beaked and dorsally spurred, the outer surface stellately pubescent, the sides or partitions coarsely reticulate-honeycombed; seeds reddish brown, glabrous except for several cilia about the hilum.

TEXAS: *Pope* (GH, holotype).

The definite locality where this collection was made is unknown. According to William P. Blake, who prepared the Geology of the route

near the thirty second parallel in Pacific Railroad Reports, Vol. 2. 1856, the area of exploration covered by Capt. John Pope in 1854 was from Preston, Grayson County, on the Red River of Texas in a direction south of west to the Pecos River and thence west nearly to the Valley of the Rio Grande at El Paso and Doña Ana in New Mexico.

This is the third known species in the Section *Euanoda* Gray, that is characterized by its fruit being a flattened disc of radiating beaked carpels. The other two species have long been known, and they both occur in Texas. They are *A. cristata* (L.) Schlecht. and *A. Wrightii* Gray.

**Centaureum Beyrichii** (T. & G.) Robins. var. **glanduliferum** Correll, var. nov.

Differt a var. *Beyrichii* glandibus numerosis minutis, praesertim in foliis.

TEXAS: Terrell County, 8 miles west of Sanderson, limestone hill, flowers deep pink, September 13, 1961, *D. S. Correll & M. C. Johnston 24580* (LL, holoytpe).

The var. *glanduliferum* occurs in West Texas, and is a small much-branched plant about 15 cm. tall. It is distinguished from var. *Beyrichii* by the occurrence of numerous minute glands, especially on the leaves. It also has blackish or very dark brown seeds.

**Monarda viridissima** Correll, sp. nov.

Planta perennis, lignosa, ad 8 dm. alta, caule una vel caulibus numerosis erectis superne parce ramosis; nodi aliquantum breves, saepe minus quam 4 cm. longi; folia linearia vel peranguste lineari-lanceolata, basi in petiolum tenuem ad circa 1 cm. longum decrescentia, apice longo-acuminata, ad circa 9 cm. longa et ad circa 8 mm. lata, plerumque multo minoria, typice veridia et plus minusve pubescentia, aliquando tomento libro infra secus costam infra medium vel tantum margine pilis paucis longiusculis prope basin, raro admodum glabra, discretim oliodonta supra medium vel subintegra; verticilli florum tot quot 5 in caule; bracteae florales late ovatae vel elliptico-lanceolatae, acuminatae, roseae vel tyriae, ad 2 cm. longae, integerae vel supra medium discretim oligodontae; calyx circa 6 mm. longus saepe purpureus tinctus, intra orificium pilorum alborum erectorum caespite, dentibus subulatis sparsim hirsutis plerumque 1 mm. longis; corolla nivea vel eburnea interdum rosea tincta, punctis dispersis rubellis.

Woody perennial to 8 dm. high, with one or more erect puberulent stems that are sparsely branched above; nodes rather short, often less than 4 cm. long; leaves linear to very narrowly linear-lanceolate, tapered at base to a slender petiole to about 1 cm. long, long-acuminate at apex, to about 9 cm. long and 8 mm. wide or less, usually much smaller, typi-

cally bright green and more or less pubescent, sometimes with a loose tomentum on lower surface along midrib below the middle or with only a few long marginal hairs near the base, rarely essentially glabrous, remotely several-toothed above the middle to subentire, flower whorls as many as 5 per stem; floral bracts broadly ovate to elliptic-lanceolate, acuminate, deep cerise-pink to purple, the largest to about 2 cm. long, entire or remotely few-toothed above middle; calyx about 6 mm. long, often tinged with purplish red, with a tuft of white erect hairs within the orifice, the sparsely hirsute subulate teeth mostly about 1 mm. long; corolla white to creamy white, sometimes tinged or marked with pink, with scattered reddish dots.

TEXAS: Bastrop County, sandy soil of open pine-oak woods, about 2 miles east of Bastrop, Rte. 21, perennial, the lower part of stem woody, bracts deep cerise-pink to purple, flowers creamy white with small red spots, September 10, 1968, *D. S. Correll 36368* (LL, holotype; US, GH, TEX, UC, isotypes); in sandy oak woods about 2 miles east of Elgin, flowers white with pink tips, July 11, 1958, *D. S. Correll & I. M. Johnston 19593;* in sandy oak woods near Bastrop, flowers white, September 14, 1958, *D. S. Correll & Helen B. Correll 20400.* Gonzales County, sandy hillsides near the bog on the Soefje farm near Ottine, October 3, 1943, *B. C. Tharp & Fred A. Barkley 13884* (NA). Guadalupe County, in sandy soil of cross-timbers, 13 miles south of Seguin, flowers white-lavender, July 16, 1958, *D. S. Correll & I. M. Johnston 19682.*

Apparently the nearest relatives of this endemic species are two other woody Texas species, the cinereous-canescent *M. fruticulosa* Epling, endemic to the Rio Grande Plains (Brooks, Hidalgo, Jim Hogg, Kenedy and Zapata counties), and the unique *M. maritima* (Cory) Correll in deep sands of coastal Texas (Aransas, Refugio and San Patricio counties) and Cameron Parish, Louisiana, with densely leafy and strongly pilose stems.

**Proboscidea spicata** Correll, sp. nov.

Herba annua, patens, e basi ramosa ad circa 3 dm. alta, omnino viscido-pubescens; folia petiolis gracilibus ad 1 dm. longa, suborbiculato-ovata vel subreniformia, ad circa 1 dm. alta et lata, basi cordata, apice rotundata, integra vel non profunde 3-lobata; flores parvi, ad 25 vel plures, in inflorescentia spicata ad 17 cm. lata conferti; pedunculus rhachisque crassus, rigidus; pedicelli debiles, graciles, plerumque per anthesin 15 mm. longi; pedicellorum bracteae oblanceolatae, circa 7 mm. longae; calycis bracteae oblanceolato-spathulatae, obtusae, 5–8 mm. longae; calyx campanulatus, circa 15 mm. longus, modice et irregulariter 5-lobatus; corolla infundibuliformi-campanulata; corollae tubus subroseus, vix ventricosus, prope basin valde constrictus, parte cylindrica circa 7 mm. longa, extus sparsim glandulosus, circa 2 cm. longus, orificio 15 mm. lato; faux glandulosa, punctis rubellis et maculis laeti conspicuis; corollae lobi suborbiculati, patentes, purpurei, circa 1 cm. diametro;

staminum filamenta infra partem affixam glabra vel parce villosa vel tomentosa, in partem arcuate curvatam glandulosa; pistillum 2.5 cm. longum; fructus ignoti.

Annual, spreading, branched from base, to about 3 dm. high, the herbage viscid-pubescent throughout; leaves with slender petioles to about 1 dm. long, suborbicular-ovate to subreniform, to about 1 dm. long and wide, cordate at base, rounded at apex, entire to shallowly 3-lobed; flowers small, as many as 25 or more crowded in a spicate inflorescence to 17 cm. long; peduncle and rachis stout, rigid; pedicels weak, slender, mostly about 15 mm. long in flower; pedicel-bracts oblanceolate, about 7 mm. long; calyx-bracts oblanceolate-spatulate, obtuse, 5–8 mm. long; calyx campanulate, about 15 mm. long, very shallowly and irregularly 5-lobed; corolla funnelform-campanulate; corolla-tube pinkish, scarcely ventricose, strongly constricted near base, cylindrical portion about 7 mm. long, very sparsely glandular without, about 2 cm. long and 15 mm. wide across the orifice, the glandular throat provided with reddish spots and less conspicuous blotches; corolla-lobes suborbicular, spreading, purple, about 1 cm. in diameter; filaments glabrous or sparsely villous or tomentose below their point of attachment, glandular on the arcuately curved portion; pistil 25 mm. long; fruit unknown.

TEXAS: Presidio County, in dry sandy soil along Rte. 170 east of Fort Leaton, lobes of corolla purple, June 14, 1967, *D. S. Correll & Helen B. Correll 34211* (LL, holotype; GH, isotype).

The spicate inflorescence of numerous small flowers is distinctive of this species.

# STUDIES OF TROPICAL AMERICAN PLANTS – V

Cyrus Longworth Lundell

From studies of accumulated collections from Middle America, new species are described, and notes are included on others of particular interest.

In the Nyctaginaceae, most of the species formerly referred to the genus *Torrubia* Vellozo (1825), principally by Paul C. Standley in this century, are transferred to *Guapira* Aublet (1775). The older name, *Guapira*, was taken up by Woodson (Ann. Missouri Bot. Gard. 48: 61. 1961) and subsequently by Lundell (Wrightia 3: 22. 1962). The status of these genera was recently considered in the Report of the Committee for Spermatophyta (Taxon 17: 462. 1968).

In the identification of collections from Chiapas made by Dr. Peter H. Raven and his associates, several outstanding new taxa have been found in the Celastraceae and Myrtaceae. In Guatemala, Elias Contreras continues to collect, mostly in Peten and Alta Verapaz, and his series now approximates 8000 numbers, with many additions to the flora.

**Guapira acuminata** Lundell, sp. nov. – Arbor parva, ca. 6 m. alta; ramuli graciles vel crassiusculi, novelli dense hirtelli et puberuli; folia opposita, petiolata, petiolo canaliculato, (0.6) 1–1.6 cm. longo, hirtello; lamina membranacea vel subchartacea, lanceolata, lanceolato-elliptica vel elliptica, (5) 8–13 cm. longa, 2.5–5.6 cm. lata, apice acuminata vel subcaudato-acuminata, basi acuta, utrinque novella parce hirtella et puberula, glabrata; inflorescentia feminea cymoso-paniculata, 3–4 cm. longa et lata, pedunculata, pedunculo usque ad 1.5 cm. longo, dense hirtella; pedicelli fructiferi subnulli vel usque ad 3 mm. longi; bracteolae anguste lineari-lanceolatae, usque ad 4 mm. longae; hypanthium femineum anguste urceolatum, ca. 3 mm. longum, puberulum, apice 5-dentatum; anthocarpium ovoideum, 1 cm. longum.

GUATEMALA: Dept. Peten, San Luis, km. 50 of road, on hillside in high rain forest, July 11, 1959, *C. L. Lundell 16374* (LL, type), tree, 4 in. diam., 20 ft. high, fruits bright orange.

The heterotrichous indument, comparatively large caudate acuminate leaves with sparse pubescence, and small fruiting panicles with fruits drying ovoid and costate are features to note in *G. acuminata*. The bracteoles are more prominent than in *G. linearibracteata* (Heimerl) Lundell, and the leaves and indument altogether different. *G. petenensis* (Lundell) Lundell, of the Cretaceous savanna country of central Peten, is villous-tomentose, and the leaf blades are obtuse or merely subacute.

**Guapira areolata** (Heimerl) Lundell, comb. nov. *Pisonia areolata* Heimerl, Kjoeb. Vidensk. Meddel. 1890. 159. 1891.

**Guapira asperula** (Standl.) Lundell, comb. nov. *Torrubia asperula* Standl., Publ. Field Mus. Bot. 17: 242. 1937.

**Guapira boliviana** (Britton) Lundell, comb. nov. *Pisonia boliviana* Britton, Bull. Torrey Club 27: 125. 1900.

**Guapira Bracei** (Britton) Lundell, comb. nov. *Torrubia Bracei* Britton, Bull. Torrey Club 31: 614. 1904.

**Guapira Broadwayana** (Heimerl) Lundell, comb. nov. *Pisonia Broadwayna* Heimerl, Repert. Sp. Nov. 17: 1. 1921.

**Guapira Cafferiana** (Casar.) Lundell, comb. nov. *Pisonia Cafferiana* Casar., Nov. Stirp. Bras. Dec. 68. 1842.

**Guapira campestris** (Netto) Lundell, comb. nov. *Pisonia campestris* Netto, Ann. Sci. Nat. V. 5: 83. 1866.

**Guapira cephalantha** (Standl. ex Pittier) Lundell, comb. nov. *Torrubia cephalantha* Standl. ex Pittier, Man. Pl. Usual. Venez. 177. 1926.

**Guapira combretiflora** (Mart.) Lundell, comb. nov. *Pisonia combretiflora* Mart.; Schmidt in Mart., Fl. Bras. 14(2): 360. 1872.

**Guapira coriifolia** (Heimerl) Lundell, comb. nov. *Pisonia coriifolia* Heimerl in Urban, Symb. Antill. 7: 213. 1912.

**Guapira cuspidata** (Heimerl) Lundell, comb. nov. *Pisonia cuspidata* Heimerl, Bot. Jahrb. 21: 628. 1896.

**Guapira discolor** (Spreng.) Lundell, comb. nov. *Pisonia discolor* Spreng., Syst. 2: 168. 1825.

**Guapira Dussii** (Standl.) Lundell, comb. nov. *Torrubia Dussii* Standl., Contr. U. S. Nat. Herb. 18: 99. 1916.

**Guapira Eggersiana** (Heimerl) Lundell, comb. nov. *Pisonia Eggersiana* Heimerl, Bot. Jahrb. 21: 627. 1896.

**Guapira ferruginea** (Kl.) Lundell, comb. nov. *Pisonia ferruginea* Kl.; Choisy in DC. Prodr. 13(2): 445. 1849.

**Guapira floribunda** (Hook.f.) Lundell, comb. nov. *Pisonia floribunda* Hook.f., Trans. Linn. Soc. 20: 193. 1847.

**Guapira floridana** (Britton) Lundell, comb. nov. *Pisonia floridana* Britton in Small, Fl. SE.U.S. 411. 1903.

**Guapira fragrans** (Dum.-Cours.) Lundell, comb. nov. *Pisonia fragrans* Dum.-Cours., Bot. Cult. ed: 2. 7: 114. 1814.

**Guapira graciliflora** (Mart.) Lundell, comb. nov. *Pisonia graciliflora* Mart.; Schmidt in Mart., Fl. Bras. 14(2): 358. 1872.

**Guapira Harrisiana** (Heimerl) Lundell, comb. nov. *Pisonia Harrisiana* Heimerl in Urban, Symb. Antill. 7: 214. 1912.

**Guapira Hassleriana** (Heimerl) Lundell, comb. nov. *Pisonia Hassleriana* Heimerl, Oesterr. Bot. Zeitschr. 56: 426. 1906.

**Guapira Heimerliana** (Standl.) Lundell, comb. nov. *Torrubia Heimerliana* Standl. in A. C. Smith, Lloydia 2: 177. 1939.

**Guapira hirsuta** (Choisy) Lundell, comb. nov. *Pisonia hirsuta* Choisy in DC. Prodr. 13(2): 445. 1849.

**Guapira Hoehnei** (Standl.) Lundell, comb. nov. *Torrubia Hoehnei* Standl., Publ. Field Mus. Bot. 17: 242. 1937.

**Guapira insularis** (Standl.) Lundell, comb. nov. *Torrubia insularis* Standl., Proc. Biol. Soc. Wash. 32: 241. 1919.

**Guapira itzana** Lundell, sp. nov. — Arbor, ca. 30 cm. diam.; ramuli graciles vel crassiusculi, novelli parce rufo-puberuli, glabrati; folia opposita, longe petiolata, petiolo subcanaliculato, 0.6–2.6 cm. longo; lamina glabrata, lanceolata vel elliptica, (5) 8–14 cm. longa, (2.3) 3–7 cm. lata, apice obtusa vel acuminata, acumine obtusiusculo, basi acuta; inflorescentia mascula terminalis, minute rufo-puberula, cymoso-paniculata, multiflora, usque ad 12 cm. longa, longe pedunculata, pedunculo usque ad 6.5 cm. longo; flores masculi dense rufo-puberuli; bracteolae lineari-lanceolatae, usque ad 1 mm. longae; hypanthium anguste campanulatum, 4 mm. longum, basi substipitatum, apice 5-dentatum; stamina 8, raro 7, usque ad 9.5 mm. longa.

GUATEMALA: Dept. Peten, Lake Peten Itza, bordering the lake, about 12 km. west of Remate, in high forest, May 25, 1960, *Elias Contreras 1002* (LL, type), tree, 12 in. diam.

Characters of species in *Guapira* and *Neea* are often nebulous. In some aspects, *G. itzana* appears to be a robust variety of *G. linearibracteata* (Heimerl) Lundell, but the large leaves on petioles usually over 2 cm. long, large inflorescences, staminate flowers with stipitate hypanthium, and stamens nearly 1 cm. long appear to exclude it from that species. *G. linearibracteata* is represented by *Contreras 5833* (LL) from Lake Macanche east of Remate.

*G. itzana* is another endemic of the gypsum escarpment on the north side of Lake Peten Itza.

**Guapira kanukuensis** (Standl.) Lundell, comb. nov. *Torrubia kanukuensis* Standl. in A. C. Smith, Lloydia 2: 178. 1939.

**Guapira laxiflora** (Choisy) Lundell, comb. nov. *Pisonia laxiflora* Choisy in DC. Prodr. 13(2): 444. 1849.

**Guapira Leonis** (Standl.) Lundell, comb. nov. *Torrubia Leonis* Standl., Bull. Torrey Club 53: 459. 1926.

**Guapira ligustrifolia** (Heimerl) Lundell, comb. nov. *Pisonia ligustrifolia* Heimerl in Urban, Symb. Antill. 7: 507. 1913.

**Guapira linearibracteata** (Heimerl) Lundell, Wrightia 3: 22. 1962. *Pisonia linearibracteata* Heimerl, Repert. Sp. Nov. 12: 221. 1913.

MEXICO: Yucatan, near Piste, in low second growth, June 4, 1938, *C. L. Lundell & Amelia A. Lundell 7343* (LL), tree, 15 ft. high, 3 in. diam., fruits subglobose, dark red, "*xtaadzik*"; near Xocenpich, in low second growth, June 4, 1938, *Lundell & Lundell 7358* (LL), *7359* (LL), arborescent shrub, flowers tan; near Piste, in low second growth, June 4, 1938, *Lundell & Lundell 7360* (LL), *7365* (LL), arborescent shrub or small tree, fruits dark red; Chichen Itza, in advanced deciduous forest, June 7, 1938, *Lundell & Lundell 7429* (LL), tree, 30 ft. high, 4 in. diam., staminate flowers very fragrant. Quintana Roo: Coba, east of ruins in advanced deciduous forest, June 30, 1938, *Lundell & Lundell 7706* (LL), tree, 30 ft. high, 6 in. diam., berries dark red, very juicy.

GUATEMALA: Dept. Peten, Macanche, bordering the lake, 2.5 km. north, in low forest, May 22, 1966, *Elias Contreras 5833* (LL), tree, about 70 ft. high, 20 in. diam., flowers greenish-yellow, fruits blood-red; La Cumbre, in high forest, about 6 km. from village, on hilltop, bordering Rio Pusila, May 18, 1967, *Contreras 6946* (LL), tree, 70 ft. high, 20 in. diam., flowers greenish-white.

The collections from Peten differ somewhat in leaf form and the fruits are slightly larger. The large tree from La Cumbre in the rain forest of southeastern Peten has lanceolate acuminate leaves and may represent a distinct species.

**Guapira Loefgrenii** (Standl.) Lundell, comb. nov. *Torrubia Loefgrenii* Standl., Publ. Field Mus. Bot. 17: 243. 1937.

**Guapira longifolia** (Heimerl) Lundell comb. nov. *Pisonia discolor* var. *longifolia* Heimerl, Bot. Jahrb. 21: 627. 1896. *Pisonia longifolia* Sarg., Man. 314. 1905. *Torrubia longifolia* (Heimerl) Britton, Bull. Torrey Club 31: 614. 1904.

**Guapira luteovirens** (Heimerl) Lundell, comb. nov. *Pisonia luteovirens* Heimerl, Oesterr. Bot. Zeitschr. 56: 425. 1906.

**Guapira microphylla** (Heimerl) Lundell, comb. nov. *Pisonia microphylla* Heimerl in Urban, Symb. Antill. 7: 215. 1912.

**Guapira myrtiflora** (Standl.) Lundell, comb. nov. *Torrubia myrtiflora* Standl., Publ. Field Mus. Bot. 8: 307. 1931.

**Guapira nitida** (Mart.) Lundell, comb. nov. *Pisonia nitida* Mart.; Schmidt in Mart., Fl. Bras. 14(2): 356. 1872.

**Guapira noxia** (Netto) Lundell, comb. nov. *Pisonia noxia* Netto, Ann. Sci. Nat. V. 5: 80, *pl. 7.* 1866.

**Guapira obtusata** (Jacq.) Lundell, comb. nov. *Pisonia obtusata* Jacq., Hort. Schoenbr. 3: 36. 1798.

**Guapira obtusiloba** (Huber) Lundell, comb. nov. *Pisonia obtusiloba* Huber, Bol. Mus. Goeldi 5: 347. 1909.

**Guapira Olfersiana** (Link, Kl. & Otto) Lundell, comb. nov. *Pisonia Olfersiana* Link, Kl. & Otto, Icon. Pl. Rar. 1: 36, *pl. 15.* 1841.

**Guapira Pacurero** (H.B.K.) Lundell, comb. nov. *Pisonia Pacurero* H.B.K., Nov. Gen. & Sp. 2: 218. 1817.

**Guapira paraguayensis** (Heimerl) Lundell, comb. nov. *Pisonia paraguayensis* Heimerl, Verh. Zool. Bot. Ges. Wien 62: 7. 1912.

**Guapira parvifolia** (Standl.) Lundell, comb. nov. *Torrubia parvifolia* Standl., Publ. Field Mus. Bot. 22(1): 18. 1940.

**Guapira pernambucensis** (Casar.) Lundell, comb. nov. *Pisonia pernambucensis* Casar., Nov. Stirp. Bras. Dec. 69. 1842.

**Guapira potosina** (Standl.) Lundell, comb. nov. *Torrubia potosina* Standl., Contr. U. S. Nat. Herb. 18: 99. 1916.

**Guapira pubescens** (H.B.K.) Lundell, comb. nov. *Pisonia pubescens* H.B.K., Nov. Gen. & Sp. 2: 218. 1817.

**Guapira Riedeliana** (Fisch.) Lundell, comb. nov. *Pisonia Riedeliana* Fisch., Kjoeb. Vidensk. Meddel. 1890. 162. 1891.

**Guapira rotundata** (Griseb.) Lundell, comb. nov. *Pisonia rotundata* Griseb., Cat. Pl. Cub. 283. 1866.

**Guapira rotundifolia** (Heimerl) Lundell, comb. nov. *Neea rotundifolia* Heimerl in Urban, Symb. Antill. 7: 218. 1912.

**Guapira rufescens** (Heimerl) Lundell, comb. nov. *Pisonia calophylla* var. *rufescens* Heimerl, Bot. Jahrb. 21: 626. 1896. *Pisonia rufescens* Griseb.; Heimerl, Bot. Jahrb. 21: 626, as synonym. 1896.

**Guapira Rusbyana** (Heimerl ex Standl.) Lundell, comb. nov. *Pisonia Rusbyana* Heimerl ex Standl., Publ. Field Mus. Bot. 11: 85. 1931.

**Guapira salicifolia** (Heimerl) Lundell, comb. nov. *Pisonia salicifolia* Heimerl in Urban, Symb. Antill. 7: 216. 1912.

**Guapira Schomburgkiana** (Heimerl) Lundell, comb. nov. *Pisonia Schomburgkiana* Heimerl, Jahresb. Staats-Oberrealsch. Fünfhaus 23: [Reprint, 34]. 1897.

**Guapira Snethlagei** (Standl.) Lundell, comb. nov. *Torrubia Snethlagei* Standl., Publ. Field Mus. Bot. 11: 153. 1936.

**Guapira suborbiculata** (Hemsl.) Lundell, comb. nov. *Pisonia suborbiculata* Hemsl.; Duss, Ann. Inst. Colon. Marseilles 3: 62. 1897. *Torrubia suborbiculata* (Hemsl.) Britton, Bull. Torrey Club 31: 613. 1904.

**Guapira suspensa** (Heimerl) Lundell, comb. nov. *Pisonia suspensa* Heimerl, Med. Rijks Herb. Leiden 19: 34. 1913.

**Guapira tomentosa** (Casar.) Lundell, comb. nov. *Pisonia tomentosa* Casar., Nov. Stirp. Bras. Dec. 69. 1842.

**Guapira uberrima** (Standl.) Lundell, comb. nov. *Torrubia uberrima* Standl., Publ. Field Mus. Bot. 11: 88. 1931.

**Guapira Uleana** (Heimerl) Lundell, comb. nov. *Pisonia Uleana* Heimerl, Bot. Jahrb. 42: 80. 1908.

**Guapira venosa** (Choisy) Lundell, comb. nov. *Pisonia venosa* Choisy in DC. Prodr. 13(2): 444. 1849.

**Guapira Warmingii** (Heimerl) Lundell, comb. nov. *Pisonia Warmingii* Heimerl, Kjoeb. Vidensk. Meddel. 1890: 162. 1891.

**Neea guatemalensis** Lundell, sp. nov. — Frutex, vel arbor parva, ca. 7.5 cm. diam.; ramuli crassiusculi, novelli rufo-puberuli et parce villosi; folia magna, petiolata, petiolo 0.8–3.5 cm. longo, canaliculato; lamina membranacea, novella minute rufo-puberula, glabrata, oblonga, oblongo-elliptica, elliptica vel lanceolata, 15–37 cm. longa, 5–13 cm. lata, apice caudato-acuminata, basi subacuminata vel acutiuscula; inflorescentia mascula densiflora, cymoso-paniculata, breviter villosa, rufa, longe pedunculata, pedunculo usque ad 15 cm. longo; flores masculi subsessiles, parce rufo-puberuli; hypanthium urceolatum, ca. 7 mm. longum; stamina 7 vel 8; anthocarpium ellipsoideum, 8–10 mm. longum.

BRITISH HONDURAS: Toledo District, Bolo Camp, upper reach of Golden Stream, in high ridge, April 5, 1944, *Percy H. Gentle 4499* (LL, type), tree, 2 in. diam., flowers red. Also, *Gentle 5032* (LL), *5102* (LL), *5339* (LL), *7421* (LL), all from the Toledo District.

GUATEMALA: Dept. Peten, km. 148 of Cadenas Road, east in high forest, Nov. 6, 1966, *Elias Contreras 6536* (LL), shrub 2 in. diam., 20 ft. high.

The red short-villous inflorescences are up to 25 cm. long, with the peduncles as much as 15 cm. long.

**Neea parvifolia** Lundell, sp. nov. — Frutex vel arbor parva, usque ad 15 cm. diam.; ramuli graciles, novelli rufo-puberuli; folia opposita vel verticillata, petiolata, petiolo 3–12 mm. longo, parce rufo-puberulo, subcanaliculato; lamina chartacea, glabrata, lanceolata, anguste oblongo-

elliptica vel elliptica, 4–12 cm. longa, (1.3) 2.5–3.5 (4.5) cm. lata, apice acuminata vel subabrupte acuminata, basi acuminata vel acuta, opaca; inflorescentia mascula multiflora, cymoso-paniculata, longe pedunculata, rubra, dense puberula, 3.5–8 cm. longa; pedicelli usque ad 2.5 mm. longi; flores masculi dense rubro-puberuli; hypanthium anguste urceolatum, 8–10 mm. longum; stamina 6–9; anthocarpium ellipsoideum, 6–7 mm. longum, parce puberulum, costatum.

BRITISH HONDURAS: Toledo District, Golden Stream, on riverbank, April 28, 1944, *Percy H. Gentle 4562* (LL, type), shrub; flowers creamish, scented. Also, *Gentle 3729* (LL), *4887* (LL), *7665* (LL), *7765* (LL), *7932* (LL), *8239* (LL), all from southern British Honduras.

A peculiarity of *N. parvifolia* is the bright red indument which is densest at the base of the flowers. The perianth of the pistillate flowers *(Gentle 8239)* is 3 mm. long and densely red puberulent, and the pedicels are up to 6 mm. long. In the staminate flowers the perianth is papillose within apically. In fruit the inflorescences are up to 10 cm. long and wide, with peduncles up to 5 cm. long. *N. parvifolia* appears to have affinity to *N. stenophylla* Standl.

**Neea petenensis** Lundell, sp. nov. — Frutex; ramuli graciles, juventate parce rufo-puberuli; folia parva, petiolata, petiolo parce puberulo, 3–6 mm. longo, canaliculato; lamina subchartacea, glabrata, lanceolata vel anguste elliptico-lanceolata, 6–12 cm. longa, 1.5–4 cm. lata, apice acuminata, acumine acuto vel obtusiusculo, basi acuta; inflorescentia mascula parce puberula, cymoso-paniculata, usque ad 9 cm. longa, 6 cm. lata, longe pedunculata, pedunculo 3–4.7 cm. longo, pedicellis usque ad 4 mm. longis; hypanthium ellipticum, ca. 6 mm. longum, parce puberulum, basi dense puberulum; stamina 7.

GUATEMALA: Dept. Peten, Guayacan, La Pita, bordering Laguna Guayacan, in low forest on rocky land, north, Jan. 15, 1968, *Elias Contreras 7470* (LL, type), shrub, 4 ft. high, flowers greenish.

A relationship between *N. petenensis* and *N. transparens* Lundell is apparent, but the former has shorter petioles, and the hypanthium of the staminate flowers is only about half as large and elliptic in shape. The peduncles and branches of the inflorescences are filiform.

**Neea transparens** Lundell, sp. nov. — Arbor parva, ca. 10 m. alta, 10 cm. diam.; ramuli graciles, novelli subadpresse rufo-puberuli; folia parva, opposita, petiolata, petiolo 4–14 mm. longo, canaliculato, glabrato; lamina membranacea, lanceolata vel lanceolato-elliptica, 5.5–12 cm longa, 1.5–3.8 cm. lata, apice acuminata, basi acuminata vel subacuminata, opaca, striolata, novella parce adpresse puberula, glabrata; inflorescentia mascula parva, cymoso-paniculata, pauciflora, 4–7 cm. longa, longe

pedunculata, pedunculo usque ad 3.5 cm. longo, adpresse puberula; pedicelli usque ad 4 mm. longi; hypanthium anguste urceolatum, 10–12 mm. longum, parce striatum, basi parce adpresse puberulum; stamina 7.

GUATEMALA: Dept. Alta Verapaz, Chahal, on Sepur Ranch, bordering Rio Chahal, 3 km. south, Oct. 8, 1968, *Elias Contreras 7863* (LL, type), small tree, 30 ft. high, 4 in. diam., flowers greenish.

In leaves and habit *N. transparens* closely resembles *N. parvifolia*, but the inflorescence is strikingly different in having very slender peduncles, and longer very thin branches and branchlets. The flowers are fewer. The staminate hypanthium is nearly glabrous, up to 12 mm. long, and transparent when dry so that the stamens are visible within.

**Pisonia petenensis** Lundell, sp. nov. — Frutex subscandens, ramulis crassiusculis, armatis, villosis; folia longe petiolata, petiolo 1–2.5 cm. longo, villoso; lamina chartacea, elliptica vel obovato-elliptica, 5.5–13 cm. longa, 2.8–5.7 cm. lata, apice acuminata, basi acuta vel acuminata, utrinque parce villosa; inflorescentia feminea axillaris, villosa, cymoso-paniculata, 4–6 cm. longa, laxa, pauciflora, longe pedunculata, pedunculo 3–4 cm. longo; hypanthium minute tomentosum; anthocarpium longe pedicellatum, anguste clavatum, usque ad 1.5 cm. longum, stipitato-glandulosum.

GUATEMALA: Dept. Peten, Seamay, bordering the road to Sebol, Mar. 7, 1967, *Elias Contreras 6677* (LL, type), scandent shrub, fruit green, "*una de gato*"; El Pucte River below Sayaxche, on La Libertad Road, about 6 km. NEE of El Pucte Camp, in high forest, Mar. 5, 1964, *C. L. Lundell 18240* (LL), thorny, woody, scandent.

The long villous indument with thin shaggy hairs up to 2.5 mm. long, open few-flowered pistillate inflorescences solitary in the axils, pedicellate flowers, and clavate fruits up to 1.5 cm. long (immature) appear to distinguish *P. petenensis* from *P. aculeata* L., which it resembles. The curved spines are up to 1.8 cm. long on the main stems. The fruits at maturity probably exceed 2 cm. in length, and they bear stipitate glands in single rows. The fruits are borne on long pedicels and the infructescences are large and lax as in *P. aculeata*.

CAPPARIS LUNDELLII Standl., Carnegie Inst. Publ. 461: 57. 1935.

GUATEMALA: Dept. Peten, Lake Peten Itza, between San Jose and Remate, 3 km. from San Jose, in low forest bordering lake, Aug. 2, 1966, *Elias Contreras 5891* (LL), shrub, 20 ft. high, 4 in. diam., fruit brownish; Lake Peten Itza, between San Jose and Remate, in low forest bordering lake, Aug. 5, 1967, *Contreras 6990* (LL), shrub, 25 ft. high, 4 in. diam.

The type was collected at San Andres in 1933, and a search for the species in 1962 was unfruitful. These additional collections from the gypsum escarpment along the north shore of Lake Peten Itza are the first since the plant was discovered.

The brownish lepidote fruits are capsular, submoniliform, long stipitate, up to 15 cm. long, 1 cm. in diameter.

**Prunus potosina** Lundell, sp. nov. — Frutex, usque ad 4 m. altus; ramuli graciles, glabri; folia petiolata, petiolo 4–7 mm. longo, canaliculato; lamina chartacea vel subcoriacea, glabra, integra, ovata, elliptica vel oblongo-elliptica, (4.5) 6–8 (10.5) cm. longa, (2.2) 3.5–4.5 (5.8) cm. lata, apice obtusa vel subacuminata, acumine obtuso, basi rotundata; racemi axillares, solitarii, glabri, 0.5–1.5 cm. longi; pedicelli fructiferi crassiusculi, ca. 2 mm. longi; fructus globosus.

MEXICO: San Luis Potosi, Tamazunchale, in second growth on wet hillside, July 11, 1937, *C. L. Lundell & Amelia A. Lundell 7151* (LL, type), shrub, 4 m. high.

The very short racemes and pedicels scarcely more than 2 mm. long are features by which *P. potosina* may be recognized. The slender costa is nearly plane above, elevated beneath. There are 5 to 7 very slender primary veins discernible on the lower surface of the leaf. With two glands near the costa at base of the leaf blade, the affinity of *P. potosina* may possibly be with *P. erythoxylon* Koehne.

**Prunus siltepecana** Lundell, sp. nov. — Arbor parva, 12 m. alta; ramuli graciles, dense hirtelli, glabrati; folia petiolata, petiolo 2–2.3 cm. longo, hirtello, subapice glanduloso; lamina coriacea, serrata, lanceolata vel oblongo-lanceolata, 10–15 cm. longa, 3.7–7 cm. lata, apice acuminata, basi rotundata, supra subbullata, glabrata, subtus subvelutina, pallidiora; racemi axillares, 5–7 cm. longi, hirtelli; pedicelli hirtelli, 4–6 mm. longi; ovarium pilosum; fructus ellipsoideus, ca. 1.4 cm. diam.

MEXICO: Chiapas, in woods, Fraylesca, near Siltepec, alt. 1600 m., Mar. 6, 1945, *Eizi Matuda 5194* (LL, type), tree, 12 m. high.

*P. siltepecana* has young fruits which are pilose, unusual in species of this relationship. Its affinity may be with *P. Salasii* Standl., which is glabrous. The leaves of *P. guatemalensis* I. M. Johnston are entire and more prominently veined, but otherwise rather similar to those of *P. siltepecana*.

**Prunus tartarea** Lundell, sp. nov. — Arbor parva, omnino glabra; ramuli crassiusculi; folia petiolata, petiolo 6–12 mm. longo, crassiusculo, canaliculato; lamina rigide coriacea, pallida, integra, glabra, lanceolata, elliptica vel oblongo-elliptica, 7.5–13.5 cm. longa, (2.2) 3.5–5.3 cm. lata, apice acuminata, basi rotundata et acutiuscula, subtus pallidior, eglandulosa vel biglandulosa; racemi axillares, solitarii, glabri, 3–5.5 cm. longi, glabri; pedicelli 1.5–3 mm. longi; cupula calycis late campanulata, ca. 2 mm. alta, 3 mm. lata, intus glabra, sepalis brevissimis, late rotundatis,

ca. 0.7 mm. longis; petala suborbicularia, ca. 2.3 mm. longa; stamina ca. 24, usque ad 3 mm. longa; ovarium glabrum, stylo crassiusculo, ca. 2.5 mm. longo; fructus globosus, usque ad 1.3 cm. diam.

MEXICO: Chiapas, Sierra Madre, Saxchanal, alt. 2700 m., July 1, 1941, *Eizi Matuda 4300* (LL, type), a tree; in virgin forest, Boqueron, near Motozintla, alt. 2540 m., May 3, 1945, *Matuda 5377* (LL), tree, 4–5 m. high; in advanced forest, Niquivil, near Motozintla, alt. 2786 m., May 15, 1945, *Matuda 5491* (LL), tree, 7 m. high, flowers white.

The two glands near the base of the leaf beneath, when present, are usually remote from the costa, bordering the first primary vein. *P. tartarea,* the name alluding to the bark characteristics of the branchlets, is notable for its rigidly coriaceous pallid leaves with costa narrowly impressed above, and its short racemes and pedicels. This species of the high altitudes appears to have affinity to *P. Lundelliana* Standl.

**Prunus tikalana** Lundell, sp. nov. — Arbor ca. 20 m. alta, 25 cm. diam., glaberrima; ramuli graciles; folia glabra, petiolata, petiolo 7–10 mm. longo, canaliculato; lamina subcoriacea, integra, glabra, elliptica, ovata, ovato-elliptica vel lanceolata, 6–10.5 cm. longa, 2.3–5.5 cm. lata, apice subacuminata vel acuminata, acumine obtuso, basi rotundata, subtus pallidior; racemi axillares solitarii, 3.5–6 cm. longi; pedicelli 3.5–5 mm. longi; cupula calycis late campanulata, 1.5–2 mm. alta, 3 mm. lata, intus glabra, sepalis brevissimis, late rotundatis, ca. 0.5 mm. longis; petala alba, 2 mm. longa; stamina 10–14, parva, 1.5–2.7 mm. longa; stylus crassus, ca. 1.5 mm. longus.

GUATEMALA: Dept. Peten, Tikal National Park, Tikal, in *zapotal* on Remate Road east of Aguada Tikal, Jan. 28, 1964, *C. L. Lundell 17570* (LL, type), tree, about 10 in. diam., 60 ft. high, flowers white, fragrant.

Of affinity to *P. Lundelliana* Standl. of the mountains of Chiapas and Guatemala, *P. tikalana* has smaller flowers, leaves with irregular gland pattern at base on undersurface, shorter pedicels, and wider leaf blades. *P. tikalana* is a beautiful tree with a broad rounded crown. No other species of *Prunus* is known from the lowlands of the Yucatan Peninsula.

When the species of this complex are critically studied, *P. myrtifolia* (L.) Urban of Jamaica will be found to be very closely related if not conspecific with several mainland taxa.

BAUHINIA GENTLEI Lundell, Wrightia 3: 120. 1965.

GUATEMALA: Dept. Peten, Santa Elena, on Fallabon Road, Sept. 17, 1966, *Elias Contreras 6142* (LL), woody vine, flowers white, "*pata de vaca*"; km. 72 of Poptun-Santa Elena Road, in high forest, Oct. 24, 1966, *Contreras 6495* (LL), woody vine, fruit brownish, "*pata de vaca.*"

Described from the Toledo District of British Honduras, these are the first collections in Guatemala. The immature legume is oblong, up to 5

cm. long, 1.4 cm. wide, and rounded and apiculate at apex. It is pubescent with soft appressed coppery hairs.

**Casimiroa microcarpa** Lundell, sp. nov. – Frutex vel arbor parva; ramuli crassi, novelli puberuli et parce hirtelli; folia longe petiolata, 5-foliolata, petiolo gracili, 5.5–13 cm. longo, puberulo, petiolulis 2-20 mm. longis; foliola crenulata, membranacea vel chartacea, obovata vel obovato-elliptica, 5–20 cm. longa, 2.5–9.5 cm. lata, apice rotundata et subabrupte acuminata vel caudato-acuminata, acumine obtuso, crenulato, basi acuta vel late subcuneata, utrinque parce puberula et hirtella; inflorescentia axillaris, paniculata, sessilis, usque ad 5 cm. longa, novella puberula vel hirtella, glabrata; pedicelli fructiferi crassi, 4–6 mm. longi; drupa parva, asymmetrica, ellipsoidea, usque ad 2 cm. longa, apiculata, punctata, glabra; semina 1.

GUATEMALA: Dept. Peten, Tikal National Park, Tikal, on Remate Road, in *zapotal*, Jan. 28, 1964, *C. L. Lundell 17582* (LL, type), shrub 6 ft. high, fruit 1-seeded; Lake Petexbatun, in high forest above lake, Feb. 16, 1964, *Lundell 17750* (LL), small arborescent shrub, 2 in. diam., 15 ft. high.

The species is remarkable for its small fruits.

**Bursera itzae** Lundell, sp. nov. – Arbor 20 m. alta; ramuli crassi, piloso-pubescenti; folia longe petiolata, imparipinnata, 3–7-foliolata; foliola subchartacea, supra glabra, subtus pilosa; terminalia longe petiolata, petiolo usque ad 2 cm. longo, piloso, lamina elliptica vel ovato-elliptica, usque ad 7 cm. longa, apice acuminata, basi rotundata; lateralia petiolata, petiolo piloso, 2–7 mm. longo, lamina ovata vel lanceolata, 4–8.5 cm. longa, 1.8–3.5 cm. lata, apice acuminata, basi rotundata vel emarginata; inflorescentia longe pedunculata, pilosa, racemosa vel raro anguste paniculata, usque ad 22 cm. longa; pedicelli fructiferi 6–12 mm. longi; capsula glabra, 3-valvata, acuta.

GUATEMALA: Dept. Peten, Lake Peten Itza, between San Andres and Remate, in low forest bordering lake, Aug. 5, 1967, *Elias Contreras 6978* (LL, type), tree, 60 ft. high, 12 in. diam., young fruit green, "*chacaj*."

*B. itzae* is remarkable for its long slender inflorescences which often equal or exceed the leaves in length. At the lower node, some inflorescences have short branches, and the flowers are often subverticillate. The leaflets have a few hairs above along the costa, and they are conspicuously pilose beneath along the midvein and lateral nerves, but with thin hairs on the veinlets. The pedicels are long and slender, and glabrous in fruit. The flowers are 5-parted.

The affinity of *B. itzae* is to *B. Simaruba* (L.) Sarg. and it has some resemblances to var. *yucatanensis* Lundell, the type of which came from the same gypsum escarpment along the north shore of Lake Peten Itza.

**Sebastiania chahalana** Lundell, sp. nov. — Arbor glabra, usque ad 13 m. alta, 15 cm. diam.; ramuli graciles; folia petiolata, petiolo 7–15 mm. longo, canaliculato; lamina membranacea, glabra, elliptica, ovato-elliptica vel lanceolata, 5–10 cm. longa, 2.5–5 cm. lata, minute crenulato-serrulata, apice caudato-acuminata, basi acuta, subtus pallidior, basi eglandulosa, nervis lateralibus utroque latere 5–7; inflorescentiae terminales; pedicelli fructiferi subnulli; capsula glabra, usque ad 1.5 cm. longa; semina globosa, 4 mm. diam.

GUATEMALA: Dept. Alta Verapaz, Chahal, in high forest, bordering Rio Chiyú, on Aldea Tzetsol Abajo, 6 km. east, Oct. 16, 1968, *Elias Contreras 7948* (LL, type), tree, 40 ft. high, 6 in. diam., with poison milk, "*chechem.*"

Superficially resembling the recently described *S. chiapensis* Lundell, *S. chahalana* is without glands at the base of the leaf. Its subsessile fruits, subtended by a large collar-like gland, are exceptionally large, and apparently solitary. The thin leaves, which are very finely veined, are sometimes almost rhomboid in shape, and conspicuously cuspidate.

MAYTENUS GUATEMALENSIS Lundell, Phytologia 1: 305. 1939.

BRITISH HONDURAS: Toledo District, Camp 35, British Honduras-Guatemala boundary survey, forest shade, alt. about 750 m., June 10, 1934, *W. A. Schipp S-635* (F, isotype), shrub, 4 ft. high, 1 in. diam., flowers creamy-yellow, fruit brown.

GUATEMALA: Dept. Alta Verapaz, Chahal, in *zapotal* bordering Rio Chiyú, 3.5 km. NWW, Sept. 27–28, 1968, *Elias Contreras 7736* (LL), *7737* (LL), *7739* (LL), *7754* (LL), shrub, 6–12 ft. high, 1 in. diam., flowers yellow-green, fruits orange or reddish; Chahal, 7 km. on Sebol Road, in low forest bordering Rio Chiyú, Sept. 29, 1968, *Contreras 7763* (LL), shrub, 9 ft. high, 1 in. diam., fruits orange; Chahal, Sebol Road, 6.5 km. of airfield, in *zapotal*, Sept. 30, 1968, *Contreras 7767* (LL), shrub, 15 ft. high, 2 in. diam., fruits red-pink; Chahal, in high forest bordering Chiyú River, 3.5 km. from airfield, Oct. 1, 1968, *Contreras 7780* (LL), shrub, 6 ft. high, 1 in. diam.

Known previously only with certainty from the type collection made along the Peten-Belice border by W. A. Schipp, this fine new series of collections from Chahal, Alta Verapaz, provides the first adequate material for interpretation of the species.

In *M. guatemalensis* the young twigs are sharply quadrangular with distinct ridges along the angles, a distinctive feature among the species of the Maya Area. The leaves are quite variable ranging from lanceolate to elliptic to oblong-elliptic to oblanceolate, up to 13 cm. long, 5 cm. wide. The lanceolate leaves are long acuminate with the acumen acutish, the elliptic or oblong-elliptic leaves are subabruptly acuminate, with the acumen obtuse. Fruits in all the collections are narrowed at base into a short stipe.

**Maytenus tikalensis** Lundell, sp. nov. – Arbor glabra, usque ad 15 m. alta, 55 cm. diam.; folia coriacea, pallida, parva, petiolata, petiolo 4–9

mm. longo, canaliculato; lamina minute crenulata, elliptica, 4–7.5 cm. longa, 2.1–4 cm. lata, apice obtusa et emarginata vel late subacuminata, acumine obtuso et emarginato, basi acuta; pedicelli fructiferi axillares, fasciculati, crassiusculi, 5–7 mm. longi; capsula globosa, ca. 1 cm. diam.

GUATEMALA: Dept. Peten, Tikal National Park, Bajo de Sante Fe, salida de Arroyo Corriental, in *tintal* on Aguada Terminos road, June 14, 1959, *C. L. Lundell 16077* (LL, type), tree, 22 in. diam., 50 ft. high; Tikal, in *ramonal* covering the ruins, Jan. 31, 1959, *Lundell 15265* (LL), small tree, 4 in. diam., 40 ft. high.

Both of these collections were identified and distributed as *M. guatemalensis* Lundell, the small arborescent shrub of the rain forest at the base of the Yucatan Peninsula. *M. tikalensis*, a comparatively large tree, differs at once in having terete branchlets, small mostly obtuse and emarginate rigidly coriaceous leaves with sharply ascending scarcely discernible primary veins, and globose fruits (immature) which are not stipitate.

WIMMERIA ACUMINATA L. Wms., Fieldiana Bot. 31: 253, *fig. 1*. 1967.

MEXICO: Chiapas, Municipio of Chiapa de Corzo, Chorreadero de Tuxtla, 5.6 miles east of Chiapa de Corzo along Mexican Highway 190, elev. 2500 feet, Feb. 20, 1965, *D. E. Breedlove 9090* (LL, isotype), tree 40 feet tall; Municipio of Ixtapa, steep rocky slope with *Quercus*, along Mexican Highway 190 in the Zinacantan paraje of Muctajoc, elev. 3500 feet, Oct. 26, 1965, *Breedlove 13792* (LL), shrub 6 feet tall.

The type consists of immature fruiting material, but septa are present in these fruits, which places *W. acuminata* in the subgenus *Wimmerella* Lundell, section *Leiocarpae*. Also, the thin winged fruits are wider than long. *W. acuminata* appears to be very near *W. persicifolia* Radlk. and mature fruits are needed to determine its status.

The original description states "flowers unknown," but they are illustrated in the figure on page 254. Presumably *Breedlove 13792*, in flower, was used for the illustration, along with fruits from the type.

**Wimmeria chiapensis** Lundell, sp. nov. — Arbor, ca. 13 m. alta, omnino glabra; ramuli crassiusculi, angulati; folia subcoriacea, glabra, minute serrulata, lanceolata vel oblongo-lanceolata, 6–10 cm. longa, 2–3.7 cm. lata, apice acuminata, basi acuta vel subacuminata, supra sublucida, subtus pallida, petiolata, petiolo 4–8 mm. longo; cymae usque 2 cm. longae, longe pedunculatae; pedicelli fructiferi 3.5–6 mm. longi; fructus parvus, trialatus, ovatus vel ovato-ellipticus, 0.8–2 cm. latus, 1–2.2 cm. altus.

MEXICO: Chiapas, Municipio of Ocosingo, slope with evergreen forest along a branch of the Rio Jatate near the Finca of El Real, elev. 2000 feet, April 8, 1967, *D. E. Breedlove 15631* (LL, type), tree 40 feet tall.

The small fruits resemble those of *Wimmeria concolor* Schl. & Cham., and *W. chiapensis* is very near that species of the subgenus *Euwimmeria* Lundell. The long acuminate lanceolate leaves with very inconspicuous venation differ from those of *W. concolor* in aspect. The fruits of *W. chiapensis* are cordate at base with the rounded lobes almost overlapping, while the apex is rounded, truncate, or shallowly emarginate.

**Wimmeria Lambii** (Standl. & L. Wms.) Lundell, comb. nov. *Maytenus Lambii* Standl. & L. Wms., Ceiba 1: 152. 1950.

GUATEMALA: Dept. Peten, in high forest 5 km. south of Poptun, Feb. 4, 1950, *F. Bruce Lamb 105* (F, isotype), small tree 30 ft. high, 5 in. diam.

This may be only a small flowered form of *W. Bartlettii* Lundell, well represented by *Percy H. Gentle 7696* (LL) from the Toledo District of British Honduras. Another collection from the same area, *Gentle 7705* (LL), has long been a puzzle because of its very small fruits. It may be referable to *W. Lambii.*

**Wimmeria montana** Lundell, sp. nov. — Arbor, usque ad 35 m. alta, omnino glabra; folia coriacea, serrulata, glabra, oblonga vel lanceolato-oblonga, 6–10 cm. longa, 1.7–3.5 cm. lata, apice acuminata, acumine acutiusculo, basi acuta, supra lucida, subtus opaca, longe petiolata, petiolo crassiusculo, 5–15 mm. longo; cymae parvae, pauciflorae, longe pedunculatae; pedicelli fructiferi 6–10 mm. longi; fructus bialatus vel trialatus, ovatus vel ellipticus, usque ad 2 cm. altus, 1.8 cm. latus, utrinque emarginatus.

MEXICO: Chiapas, Municipio of Tenejapa, slope with *Quercus* and *Abies* in Colonia Ach'lum, elev. 8600 ft., April 26, 1966, *Alush Shilom Ton 902* (LL, type), tree 110 ft. tall.

Referable to the subgenus *Euwimmeria* Lundell, this large tree of high elevations is noteworthy for its narrow oblongish coriaceous veiny leaves with lucid upper surface, small ellipsoid mostly biwinged fruits, long rather stout petioles, and elongated pedicels. It does not appear to be closely related to either *W. concolor* Schl. & Cham. or *W. chiapensis* Lundell, both of which have similar small fruits.

**Eugenia carranzae** Lundell, sp. nov. — Frutex glaber; rami graciles; folia chartacea, punctata, glabra, petiolata, petiolo 3.5–5 mm. longo; lamina elliptica vel ovato-elliptica, 3.5–6.5 cm. longa, 2.5–3.5 cm. lata, apice abrupte acuminata, basi acuta vel acutiuscula, subtus pallida, nervo medio supra subplano; racemi abbreviati, 1–4 mm. longi; pedicelli crassiusculi, 3–6 mm. longi; bracteolae divaricatae, parvae, subconnatae vel non connatae; hypanthium suburceolatum, glabrum; calycis lobi erecti, inaequales, majores basi 1.6–1.8 mm. lati, usque ad 1.3 mm. longi, late rotundati, ciliati; discus ca. 1.5 mm. latus; stylus 6.5 mm. longus; ovarium biloculare, ovulis in quoque loculo 6; fructus stipitatus.

MEXICO: Chiapas, Municipio of Venustiano Carranza, Rancho Carmen along road from Acala to Venustiano Carranza, elev. 2600 feet, Aug. 23, 1966, *Robert M. Laughlin 1632* (LL, type), shrub 12 feet tall.

The leaves are whitened, and subglaucous beneath, and the fine lateral veins, strongly ascending, are branched conspicuously and anastomosing to often form double marginal veins. Except for the bracts, bracteoles and ciliate calyx lobes, the plant in the young fruiting stage is entirely glabrous. The immature fruits are abruptly stipitate, the stipe up to 2 mm. long. The flowers are borne singly in the bracts, and decussately opposite.

*E. carranzae* appears to have affinity to *E. capulioides* Lundell.

**Eugenia chacteana** Lundell, sp. nov. – Frutex, usque ad 5 m. altus; ramuli graciles, novelli peradpresse pubescenti; folia petiolata, petiolo 5–8 mm. longo, canaliculato; lamina elliptica vel anguste elliptica, 6–10 cm. longa, 2.4–4 cm. lata, apice subabrupte acuminata, acumine acutiusculo, basi acuta, chartacea, adulta glabra, costa supra impressa, utrinque nervis venisque prominulis; flores axillares brevissime racemosi, adpresse pubescenti; pedicelli 2–5 mm. longi, graciles, adpresse pubescenti; bracteolae parvae, usque ad. 0.5 mm. longae, connatae; calycis lobi concavi, majores 1.2 mm. longi latique, ciliolati; petala ca. 3 mm. longa; discus ca. 1.3 mm. latus; stylus 7 mm. longus; ovarium biloculare, ovulis quoque loculo 9–10.

GUATEMALA: Dept. Peten, Chacte, km. 145 of Cadenas Road, March 15, 1968, *Elias Contreras 7622* (LL, type), shrub, 15 ft. high, 2 in. diam., flowers white.

The internodes of *E. chacteana* are compressed and enlarged apically. Pubescence of the young twigs and inflorescence consists of closely appressed short coppery hairs. The short racemes are aggregated in the leaf axils with the rachis up to 2 mm. long. The small disk is hairy and round. Affinity of *E. chacteana* appears to be with *E. calciphila* Lundell which is considered a synonym of *E. laevis* Berg by McVaugh (Fieldiana Bot. 24(7): 349. 1963). The connate bracteoles and rather sharply acuminate leaves are among the features distinguishing *E. chacteana*.

**Eugenia chahalana** Lundell, sp. nov. – Arbor, ca. 15 m. alta, 20 cm. diam., glabrata; ramuli graciles; folia flavida, parva, petiolata, petiolo canaliculato, 3.5–7 mm. longo; lamina subcoriacea vel coriacea, glabra, supra lucida, enervia, lanceolata, 2.7–5 cm. longa, 1–2.1 cm. lata, apice caudato-acuminata, acumine obtuso, basi acutiuscula; flores axillares brevissime racemosi; pedicelli fructiferi 4–7 mm. longi; bracteolae minutae, ovatae, ca. 0.5 mm. longae, acutae; fructus ellipsoideus, 10–11.5 mm. longus, breviter stipitatus.

GUATEMALA: Dept. Alta Verapaz, Chahal, on El Mago-Sebol Road, on top of rocky hill, Oct. 15, 1968, *Elias Contreras 7939* (LL, type), tree, 45 ft. high, 8 in. diam., "*guayabillo.*"

The midvein of the lustrous leaves is plane above and only slightly elevated beneath. The lateral veins are not visible above, and scarcely discernible on the lower surface. The axis of the short racemes rarely exceeds 3 mm., and it has traces of some appressed reddish pubescence. The sepals persisting on the fruits are suberect, about 1.2 mm. long and wide, rounded and incurved at apex. The small pitted disk is about 1.6 mm. in diameter and glabrous. The species has affinity to *E. fiscalensis* Donn. Sm., which has altogether different leaves, and a much larger calyx and disk.

**Eugenia Ravenii** Lundell, sp. nov. — Arbor, ca. 13 m. alta, ramulis gracilibus, dense ferrugineo-tomentosis; folia parva, petiolata, petiolo tomentoso, 6–8 mm. longo; lamina chartacea, novella ferrugineo-tomentosa, glabrata, lanceolata vel oblongo-lanceolata, 5.5–8 cm. longa, 2.2–3 cm. lata, apice caudato-acuminata, basi acuta, supra in sicco sublucida, costa anguste subimpressa, nervis prominulis, subtus pallidior, minute punctata; flores axillares, fasciculati, sessiles, dense ferrugineo-tomentosi; sepala 4, inaequalia, suborbicularia, 4–5 mm. longa, intus glabra; petala alba, suborbicularia, punctata, usque ad 8 mm. longa, ciliata, glabra, apice abrupte acuminata vel obtusa; stamina numerosa; stylus 12 mm. longus; ovula 4 vel 5.

MEXICO: Chiapas, cloud forest on ridge north of Clinica Yerba Buena near Pueblo Nuevo Solistahuacan, municipio of Pueblo Nuevo Solistahuacan, elev. 6500 feet, Jan. 25, 1965, *Peter H. Raven & D. E. Breedlove 20030* (LL, type), flowers white; tree 40 ft. tall.

The dense red tomentum is similar to that of *E. pachychlamys* Donn. Sm. to which *E. Ravenii* appears to have affinity. The caudate-acuminate slender leaves, sepals 4 to 5 mm. long and glabrous within, and two-celled ovary with only 4 or 5 ovules in each cell, are features which clearly mark *E. Ravenii* as a distinct taxon. The sessile flowers appear to be fasciculate, but are borne on a short rachis which is completely obscured by the dense tomentum.

EUGENIA TOLEDINENSIS Lundell, Phytologia 1: 307. 1939; Fieldiana Bot. 24(7): 366. 1963.

GUATEMALA: Dept. Alta Verapaz, Chahal, October, 1968, *Elias Contreras 7891* (LL), *7902* (LL), *7969* (LL), tree, up to 45 ft. high, 10 in. diam., "*guayabillo.*"

The species has been known previously only from the type collection made on creek bank in forest, ca. 600 meters, Camp 23 of the British Honduras-Guatemala boundary survey, *W. A. Schipp S-644* (type, MICH). The Chahal specimens, all in fruit, agree well with the original description.

Young fruits of *Contreras 7902* have persistent bracteoles. The bracteoles are free, broadly rounded, about 4 mm. wide, 3.5 mm. long, rufous-tomentose, and tardily deciduous in fruit.

**Eugenia Tonii** Lundell, sp. nov. — Arbor, ca. 10 m. alta, glabra; rami graciles; folia coriacea, glabra, punctata, petiolata, petiolo usque ad 3.5 mm. longo; lamina lanceolata vel anguste lanceolato-elliptica, 3–5.5 cm. longa, 1–1.9 cm. lata, basi acuta, apice acuminata, acumine obtuso, nervo medio supra impresso; racemi abbreviati, crassi, ca. 2 mm. longi; pedicelli fructiferi subnulli vel nulli; calycis lobi inaequales, late rotundati, majores ca. 2.3 mm. lati; fructus costatus, dense verruculosus, globosus, usque ad 2.5 cm. diam.; discus ca. 3.7 mm. diam.

MEXICO: Chiapas, Municipio of Tenejapa, heavily wooded slope with *Abies*, *Podocarpus* and *Quercus* in the Colonia Ach'lum, elev. 9100 feet, Dec. 12, 1966, *Alush Shilom Ton 1765* (LL, type), tree 30 ft. tall.

The large globose essentially sessile densely warty and costate fruits are unlike those of any other species of the Myrtaceae in Middle America. The leaves, smooth with very inconspicuous veins, are very similar to those of *E. letreroana* Lundell. *E. Tonii* is entirely glabrous in fruit, except that the calyx lobes appear to be ciliolate. Stems, petioles and inflorescences of *E. letreroana* are minutely puberulent, the petioles are 4 to 6 mm. long, and the raceme axis is up to 9 mm. long, all features which, aside from the fruits, distinguish this species from *E. Tonii*.

**Fraxinus petenensis** Lundell, sp. nov. — Arbor parva, ca. 11 m. alta; ramuli crassiusculi, novelli minute glanduloso-papillosi; folia glabra, 5–9-foliolata, raro 1–3-foliolata, usque ad 15 cm. longa; foliola subcoriacea, lateralia sessilia, terminale longe petiolulatum, lanceolata vel anguste lanceolato-elliptica, 3–9 cm. longa, 1.2–3 cm. lata, basi subcuneata, apice acuta vel obtusiuscula, grosse dentata vel adpresse crenato-denticulata, supra opaca, costa nervisque impressis, subtus pallidiora; panicula fructifera axillaris, parva, usque ad 4 cm. longa, pedicellis filiformibus 2–4 mm. longis; fructus 2–2.5 cm. longus, parte seminifera ca. 6–8 mm. longa, subtereti; ala oblanceolata, apice emarginata.

GUATEMALA: Dept. Peten, Lake Peten Itza, on top of La Cueva de Jobitzinaj hills, near Santa Elena, in low forest, March 16, 1968, *Elias Contreras 7627* (LL, type), tree, 35 ft. high, 2 in. diam.

*F. petenensis*, the first species of the genus to be recorded from Peten, may have affinity to *F. bicolor* Standl. & Steyerm., a shrub described from the Guatemalan highlands. *F. petenensis* has petiole and leaf rachis deeply canaliculate and very narrowly winged below the sessile leaflets. The costa, veins and sometimes the veinlets are impressed above. The leaflets with large marginal teeth are toothed above the middle.

**Schlegelia Gentlei** Lundell, sp. nov. — Frutex scandens; ramuli crassi, novelli minute puberuli; folia petiolata, petiolo crassiusculo, canaliculato, papilloso, 5–22 mm. longo; lamina coriacea, subglabra, basi novella parce papillosa, elliptica, ovato-elliptica, vel raro obovato-elliptica, (7)

12–22 cm. longa, (3) 6.5–14.5 cm. lata, apice subabrupte acuminata vel rotundata, basi fere rotundata, crassinervia, subtus basi punctato-glandulosa; inflorescentia axillaris, paniculata, densiflora, usque ad 3 cm. longa, dense et minute puberula; pedicelli usque ad 2 mm. longi; calyx campanulatus, glaber, stipitatus, 5–6 mm. longus, bilobulatus, apiculatus; corolla alba, extra glabra; tubus subcylindricus, ad 8 mm. longus, 3.5–4 mm. latus, superne paullum ampliatus, intus circa insertionem staminum villosus; limbus expansus, 1.2–1.5 cm. diametro, lobis obovato-ellipticis, intus papillosis, ad 6 mm. longis; stamina medio tubi affixa; filamenta basi villosa, 3–4 mm. longa; antherae ca. 1.4 mm. longae; ovarium glabrum; stylus glaber; ovula numerosa.

GUATEMALA: Dept. Alta Verapaz, Sebol, in *corozal* about 1 km. east, April 22, 1964, *Elias Contreras 4471* (LL, type), woody vine, flowers white, aromatic; same locality, *Contreras 4424* (LL), *4462* (LL).

BRITISH HONDURAS: Toledo District, in high ridge, near Condemn Branch Hills, March 3, 1945, *Percy H. Gentle 5250* (LL), woody vine, berries white; in cohune ridge, Edwards Road beyond Columbia, June 9, 1947, *Gentle 6228* (LL), woody vine, flowers white, scented; in broken ridge, upper Joe Taylor Creek, Oct. 27, 1951, *Gentle 7488* (LL), woody vine, flowers white, scented; in swampy area, Mafridyle Creek, Feb. 9, 1952, *Gentle 7565* (LL), woody vine, flowers white, scented.

*S. Gentlei* has much smaller flowers than either of the two species reported from the Maya Area by Seibert (Carnegie Inst. Publ. 522: 386. 1940). Treatments of sundry species of Middle America and the relationships of the genus are to be found in Sandwith (Kew Bull. 1930: 210. 1930) and Monachino (Phytologia 3: 102. 1949). I have not seen the type of *S. Ramizii* Sandwith var. *trichandra* Sandwith (Kew Bull. 1940: 304. 1941), which was collected in British Honduras *(Peck 666)*, and from description *S. Gentlei* appears to be the same as this variety, but I consider the taxon to be of species rank and redescribe it to avoid possible confusion.

VOLUME 4 OCTOBER, 1969 NUMBER 3

# WRIGHTIA

## A BOTANICAL JOURNAL

CONTENTS

Studies of American Plants—I.
By Cyrus Longworth Lundell ..... 97

PUBLISHED BY
TEXAS RESEARCH FOUNDATION
RENNER, TEXAS

BOTANICAL

# WRIGHTIA

WRIGHTIA, a botanical journal, is a publication of Texas Research Foundation. The contributions are by staff members and collaborators. Each volume will contain a series of numbers. The numbers will be issued at irregular intervals over a period of several years.

VOLUME 4, NUMBER 3
ISSUED OCTOBER 15, 1969

Printed in the U.S.A.
Etheridge Printing Company
Dallas, Texas

WRIGHTIA

VOLUME 4 OCTOBER, 1969 NUMBER 3

# STUDIES OF AMERICAN PLANTS – I

CYRUS LONGWORTH LUNDELL

The Department of Peten, Guatemala, is becoming more and more accessible by air and land. No longer must one spend a week on muleback to reach this remote area as I did in 1932 and 1933. The Department holds immense promise, especially as a tourist center, for Tikal, the great metropolis of the ancient Maya, and other great archaeological sites, are attractions unequaled elsewhere in the Western Hemisphere. But all-season highways, well developed airports, and modern hotel facilities are needed. Development of the area proceeds, but at a snail's pace.

As traffic to Peten grows, there is increased interest in its forest. It is being "discovered." Evidently few are aware that botanical exploration of Peten has been almost continuous since 1931, and that the flora is better known than that of most of Middle America. Also, intensive work has been done on its phytogeography. The history of early botanical exploration in Peten is given in Lundell's *The Vegetation of Peten* (Carnegie Inst. Wash. Publ. No. 478. 1937). In 1922, O. F. Cook and R. D. Martin made the first collections. Subsequently, exploration has been continued by H. H. Bartlett (1931), C. L. Lundell (1932, 1933, 1959-1964), W. A. Schipp (1934), Mercedes Aguilar H. (1933-1934), Julian A. Steyermark (1942), Frank E. Egler (1942), and Elias Contreras (1959-1969). Nearly 20,000 collections have been made in Peten, mostly by Lundell and Contreras. The series of my field assistant, Elias Contreras, now exceeds 8800 numbers. The first set is in the Lundell Herbarium at Renner.

Since Peten was a center of development of the civilization of the ancient Maya, who held sway in the area through the first millennium A.D., most of the region was in cultivation over a period of possibly 2000 years. With the *milpa* system of shifting agriculture, only areas too precipitous to clear, or too swampy, were spared, and fires often swept these. Hence, there is little "virgin" forest in the uplands, and the limited flora of the limestone areas is a reflection, in part, of this. The *bajos* contain the most extensive growth of undisturbed vegetation.

During the era since the 1920's, exploitation of the sapodilla tree for chicle has greatly added to the degeneration of the forest. In spite of the secondary nature of much of the forest, it is of interest, and endemism is high in such families as the Lauraceae and Myrtaceae. The rain forest

of southern Peten, where the geology is most varied, and the rainfall greatest, is least known, and offers most of interest for the botanical explorer.

The aforementioned book, *The Vegetation of Peten*, and two companion volumes, *Botany of the Maya Area: Miscellaneous Papers* (Carnegie Inst. Wash. Publ. Nos. 461, published in 1936, and 522, published in 1940) provide, along with recent papers in *Wrightia*, a comprehensive background for the study of the botany of the area. Much of the data in these publications has been incorporated in the *Flora of Guatemala* by Paul C. Standley, et al. (Fieldiana Bot., vols. 24, 25, 26), the first issue of which appeared in 1946.

My studies now extend into South America and the West Indies, with particular interest in the Lauraceae, Celastraceae, Myrtaceae and Myrsinaceae. My dissent of long standing regarding the acceptance of *Licaria* Aubl., a genus based on a sterile specimen, is consummated by the transfer of all remaining species to *Misanteca* Schlecht. & Cham. Miranda has well stated the case for rejecting *Licaria* and accepting *Misanteca* (Bol. Soc. Mex. 29: 35. 1965).

Most of the new species described in "Studies of American Plants – I" are from the Maya Area, principally from the collections of Dr. Peter H. Raven and his associates, and from accumulated collections of Lundell, Gentle, Matuda and Contreras.

## LAURACEAE

**Aniba guatemalensis** Lundell, sp. nov. – Frutex; ramuli gracillimi, glabri; folia glabra, petiolata, petiolo 7–11 mm. longo; lamina subchartacea, anguste lanceolato-elliptica vel oblongo-lanceolata, 8.5–18 cm. longa, 2–5 cm. lata, apice caudato-acuminata, basi acuta, utrinque reticulato-venosa; inflorescentia glabra, parva, paniculata, 2–4 cm. longa; pedicelli 1.5–3 mm. longi; flores 2.5–3 mm. longi, lobis ovatis, ca. 1.4 mm. longis, minute ciliolatis; stamina 9; staminodia 3, parva; ovarium glabrum.

A shrub, about 6 m. high, 7.5 cm. in diameter, glabrous; branchlets terete, slender; leaves with blackened shallowly canaliculate petioles 7–11 mm. long; leaf blades slightly paler beneath, glabrous, subchartaceous, narrowly lanceolate-ellipic or oblong-lanceolate, 8.5–18 cm. long, 2–5 cm. wide, apex acuminate or caudate-acuminate, the acumen obtusish, base acutish, finely reticulate-veined on both surfaces, the midvein depressed but slightly elevated above, prominent beneath, the primary lateral veins 6 or 7 pairs, strongly arcuately ascending, slender and less evident above; inflorescence paniculate, few-flowered, small, glabrous, 2–4 cm. long; pedicels slender, enlarged above, 1.5–3 mm. long; flowers 2.5–3 mm. long, essentially glabrous, the perianth tube obconical, the lobes equal, suberect, ovate, about 1.4 mm. long, minutely ciliolate;

stamens 9, about 1 mm. long, the inner three conspicuously biglandular at base; anthers 2-celled, ovate-triangular, obtusish or acute; staminodia 3, small, stipitiform, about 0.6 mm. long, slightly enlarged apically; ovary ellipsoid, glabrous, the short style without enlarged stigma.

Guatemala: Dept. Alta Verapaz, Chahal, in high forest, 6.5 km. on El Mago, bordering Sebol Road, Oct. 15, 1968, *Elias Contreras 7941* (LL, type), shrub, 20 ft. high, 3 in. diam., flowers yellowish, "*laurel*."

The species has slender, thin, acuminate, reticulate-veined leaves which are dull green on upper surface. This leaf-type is common to species of several genera of the area, notably of *Licaria* and *Beilschmiedia*.

**Misanteca amara** (Mez) Lundell, comb. nov. *Acrodiclidium amarum* Mez in Fedde, Repert. Sp. Nov. 16: 305. 1920.

**Misanteca Appelii** (Mez) Lundell, comb. nov. *Acrodiclidium Appelii* Mez, Bot. Jahrb. 17: 519. 1893.

**Misanteca Aritu** (Ducke) Lundell, comb. nov. *Licaria Aritu* Ducke, Bull. Torrey Club 78: 322. 1951.

**Misanteca armeniaca** (Poeppig ex Nees) Lundell, comb. nov. *Laurus armeniaca* Poeppig ex Nees, Syst. Laur. 264. 1836.

**Misanteca aurea** (Huber) Lundell, comb. nov. *Acrodiclidium aureum* Huber, Bol. Mus. Goeldi 6: 69. 1910.

**Misanteca brasiliensis** (Nees) Lundell, comb. nov. *Acrodiclidium brasiliense* Nees, Pl. Laur. Expos. 13: 1833; Syst. Laur. 267. 1836.

**Misanteca Brittoniana** (Allen & Gregory) Lundell, comb. nov. *Licaria Brittoniana* Allen & Gregory, Brittonia 7(4) 267. *figs. 1, 2.* 1951.

**Misanteca Camara** (Rob. Schomb.) Lundell, comb. nov. *Acrodiclidium Camara* Rob. Schomb., Lond. Jour. Bot. 3: 629. 1844.

**Misanteca Canella** (Meissn.) Lundell, comb. nov. *Aydendron Canella* Meissn. in DC., Prodr. 15(1): 90. 1864.

**Misanteca caryophyllata** (Ducke) Lundell, comb. nov. *Acrodiclidium caryophyllatum* Ducke, Trop. Woods 60: 5. 1939.

**Misanteca cayennensis** (Meissn.) Lundell, comb. nov. *Aydendron cayennense* Meissn. in DC., Prodr. 15(1): 95. 1864.

**Misanteca chrysophylla** (Meissn.) Lundell, comb. nov. *Acrodiclidium chrysophyllum* Meissn. in DC., Prodr. 15(1): 87. 1864.

**Misanteca cubensis** (O. C. Schmidt) Lundell, comb. nov. *Nobeliodendron cubense* O. C. Schmidt. in Fedde, Repert. Sp. Nov. 27: 151, *pl. 99.* 1929.

**Misanteca cymbarum** (H.B.K.) Lundell, comb. nov. *Ocotea cymbarum* H.B.K., Nov. Gen. & Sp. Pl. 2: 166. 1817.

**Misanteca debilis** (Mez) Lundell, comb. nov. *Acrodiclidium debile* Mez, Jahrb. Bot. Gart. Berl. 5: 99. 1889.

**Misanteca Duartei** (Allen) Lundell, comb. nov. *Licaria Duartei* Allen, Trop. Woods 78: 4. 1944.

**Misanteca endlicheriaefolia** (Kosterm.) Lundell, comb. nov. *Acrodiclidium endlicheriaefolium* Kosterm., Rec. Trav. Bot. Neerl. 33: 724. 1936.

**Misanteca foveolata** (Mez) Lundell, comb. nov. *Acrodiclidium foveolatum* Mez, Jahrb. Bot. Gart. Berl. 5: 92. 1889.

**Misanteca guatemalensis** (Lundell) Lundell, comb. nov. *Licaria guatemalensis* Lundell, Phytologia 12: 243. 1965.

**Misanteca jamaicensis** (Nees) Lundell, comb. nov. *Acrodiclidium jamaicense* Nees, Syst. Laur. 270. 1836.

**Misanteca latifolia** (A. C. Smith) Lundell, comb. nov. *Acrodiclidium latifolium* A. C. Smith, Bull. Torrey Club 58: 100. 1931.

**Misanteca limbosa** (Ruiz & Pavon) Lundell, comb. nov. *Laurus limbosa* Ruiz & Pavon, Fl. Peruv. 4: *t. 361*. 1794.

**Misanteca macrophylla** (A. C. Smith) Lundell, comb. nov. *Acrodiclidium macrophyllum* A. C. Smith, Bull. Torrey Club 58: 101. 1931.

**Misanteca Maguireana** (Allen) Lundell, comb. nov. *Licaria Maguireana* Allen, Bull. Torrey Club 75: 315. 1948.

**Misanteca Mahuba** (Samp.) Lundell, comb. nov. *Acrodiclidium Mahuba* A. Sampaio, Comm. Linh. Telegr. Matto Grosso Amaz. Annexo 5, Bot. 10: 14, *pls. 10, 11*. 1917.

**Misanteca Martiniana** (Mez) Lundell, comb. nov. *Acrodiclidium Martinianum* Mez, Jahrb. Bot. Gart. Berl. 5: 93. 1889.

**Misanteca Meissneri** (Mez) Lundell, comb. nov. *Acrodiclidium Meissneri* Mez, Jahrb. Bot. Gart. Berl. 5: 98. 1889.

**Misanteca multiflora** (Kosterm.) Lundell, comb. nov. *Acrodiclidium multiflorum* Kosterm., Rec. Trav. Bot. Neerl. 33: 735. 1936.

**Misanteca Mutisii** (Kosterm.) Lundell, comb. nov. *Acrodiclidium Mutisii* Kosterm., Rec. Trav. Bot. Neerl. 33: 745. 1936.

**Misanteca oblongifolia** (Lundell) Lundell, comb. nov. *Licaria oblongifolia* Lundell, Wrightia 4: 32. 1968.

**Misanteca oppositifolia** (Nees) Lundell, comb. nov. *Acrodiclidium oppositifolium* Nees, Linnaea 21: 500. 1848.

**Misanteca pachycarpa** (Meissn.) Lundell, comb. nov. *Aydendron pachycarpum* Meissn. in DC., Prodr. 15(1): 95. 1864.

**Misanteca parvifolia** (Lam.) Lundell, comb. nov. *Laurus parvifolia* Lam., Encycl. Meth. Bot. 3: 451. 1793.

**Misanteca polyphylla** (Nees) Lundell, comb. nov. *Nectandra polyphylla* Nees, Syst. Laur. 332. 1836.

**Misanteca Pucheri** (Ruiz & Pavon) Lundell, comb. nov. *Laurus Pucheri* Ruiz & Pavon, Fl. Peruv. 4: *t. 352*. 1794.

**Misanteca Puchury-major** (Mart.) Lundell, comb. nov. *Ocotea Puchury-major* Mart. in Spix & Martius, Reise Brasil 2: 1127. 1828.

**Misanteca Quixos** (Lam.) Lundell, comb. nov. *Laurus Quixos* Lam., Encycl. Meth. Bot. 3: 455. 1793.

**Misanteca Quirirafuina** (Kosterm.) Lundell, comb. nov. *Licaria Quirirafuina* Kosterm., Rec. Trav. Bot. Neerl. 34: 584. 1937.

**Misanteca reclinata** (Lundell) Lundell, comb. nov. *Licaria reclinata* Lundell, Wrightia 4: 32. 1968.

**Misanteca rigida** (Kosterm.) Lundell, comb. nov. *Acrodiclidium rigidum* Kosterm., Meded. Bot. Mus. Utrecht 25: 38. *fig. 4*. 1936.

**Misanteca salicifolia** (Sw.) Lundell, comb. nov. *Laurus salicifolia* Sw., Fl. Ind. Occ. 2: 709. 1880.

**Misanteca Schultesii** (Allen) Lundell, comb. nov. *Licaria Schultesii* Allen, Mem. N. Y. Bot. Gard. 12(3): 104. 1965.

**Misanteca sericea** (Griseb.) Lundell, comb. nov. *Acrodiclidium sericeum* Griseb., Fl. Brit. W. Ind. 280. 1861.

**Misanteca simulans** (Allen) Lundell, comb. nov. *Licaria simulans* Allen, Mem. N. Y. Bot. Gard. 10(5): 55. 1964.

**Misanteca subbullata** (Kosterm.) Lundell, comb. nov. *Licaria subbullata* Kosterm., Reinwardtia 6: 286, *fig. 4*. 1962.

**Misanteca tenuifolia** (Kosterm.) Lundell, comb. nov. *Licaria tenuifolia* Kosterm., Rec. Trav. Bot. Neerl. 34: 603. 1937.

**Misanteca tikalana** Lundell, sp. nov. — Arbor, ramulis crassiusculis, minute puberulis, glabratis; folia coriacea, glabra, petiolata, petiolo crasso, 7–13 mm. longo; lamina lanceolata vel elliptica, 11–22 cm. longa, 4.5–9 cm. lata, apice acuminata, basi rotundata et acutiuscula, supra

sublaevia, subtus areolata; infructescentia (immatura) 2–5 cm. longa, novella puberula; pedicelli fructiferi crassi, 1.5–4 mm. longi; cupula (immatura) verrucosa, usque ad 6 mm. alta, 2.5 cm. diam., margine duplice, exteriore rugoso, lobato, usque ad 7 mm. lata, interiore erecto, integro, ca. 1 mm. alto.

A tree, about 15 m. high, 36 cm. in diam.; branchlets rather slender and angled, minutely puberulent at first like the buds, glabrous at maturity; leaves large, petiolate, the petioles stout, canaliculate, 7-13 mm. long, drying blackish; leaf blades coriaceous, glabrous, lanceolate or elliptic, 11–22 cm. long, 4.5–9 cm. wide, apex acuminate, base rounded and acutish, paler beneath and reticulate-veined, the veinlets inconspicuous, upper surface smooth, the venation inconspicuous, midvein nearly plane above, prominent beneath, the primary lateral veins slender, arcuately ascending, 7 to 10 pairs; infructescence 2–5 cm. long, the peduncles 1–4 cm. long, evidently few-flowered, finely puberulent at first; pedicels of fruits short, 1.5–4 mm. long, only slightly enlarged above; cupule (immature) woody, shallow, up to 6 mm. high, 2.5 cm. diam., the outer margin patent, thick, irregularly lobed and verrucose, up to 7 mm. wide, inner one erect, rather thin, entire, about 1 mm. high, inconspicuous; immature fruits ovoid.

Guatemala: Dept. Peten, Tikal National Park, in *escobal* on Uaxactun trail, Feb. 20, 1961, *Elias Contreras 1974* (LL, type), tree, 15 in. diam., 50 ft. high, "*laurel.*"

Only young fruiting material is available, but the widely lobed and verrucose outer margin of the cupule appears distinctive. *M. tikalana* is very closely related to *M. oblongifolia* (Lundell) Lundell. Both species have leaves and pubescence of the branchlets similar to *M. capitata* Schlecht. & Cham., the species to which I originally referred the type collections of both. The outer margin of the cupule of *M. capitata* is altogether different.

**Misanteca urceolata** (Lundell) Lundell, comb. nov. *Licaria urceolata* Lundell, Wrightia 4: 33. 1968.

**Misanteca vernicosa** (Mez) Lundell, comb. nov. *Ocotea vernicosa* Mez, Jahrb. Bot. Gart. Berl. 5: 331. 1889.

**Misanteca wilhelminensis** (Allen) Lundell, comb. nov. *Licaria wilhelminensis* Allen, Mem. N. Y. Bot. Gard. 15:65, *fig. 4.* 1966.

**Nectandra corzoana** Lundell, sp. nov. — Arbor, ramulis crassiusculis, fulvo-tomentosis; folia petiolata, petiolo 6–10 mm. longo; lamina subchartacea, elliptica, oblongo-elliptica vel obovato-elliptica, 7–12 cm. longa, 3.7–7.3 cm. lata, apice subacuminata, basi rotundata vel subcordata; novella utrinque tomentosa, reticulata, nervis 7–9-paribus; inflorescentia paniculata, usque ad 15 cm. longa; pedicelli 6–8 mm. longi;

flores subcorymbosi, ca. 5 mm. longi; stamina ser. I, II foliosa, late elliptica, 2–2.3 mm. longa; stamina ser. III parva, basi biglandulosa; staminodia parva vel nulla; ovarium glabrum.

Tree, about 20 m. tall; branchlets rather thick, fulvous-tomentose; leaves with canaliculate tomentose petioles 6 10 mm. long; leaf blades subchartaceous, elliptic, oblong-elliptic, or obovate-elliptic, 7–12 cm. long, 3.7–7.3 cm. wide, apex subacuminate, acute or obtuse, base rounded and often subcordate, shining above and pubescent at first with fine subappressed hairs, thinly fulvous-tomentose beneath, the costa and veins subimpressed above, prominent beneath, the primary lateral veins 7–9 pairs; inflorescence axillary or subterminal, pubescent at first, paniculate, up to 15 cm. long, with slender peduncle up to 9 cm. long; pedicels slender, glabrous, 6–8 mm. long; flowers glabrous, subcorymbose, about 5 mm. long; perianth lobes oblong-lanceolate, 3.5–4 mm. long, papillate within, ciliolate; receptacle pubescent; stamens of ser. I & II large, foliaceous, with conspicuous apical connective tissue, broadly elliptic or suborbicular, 2–2.3 mm. long, the filament about 0.5 mm. long, pubescent; stamens of ser. III smaller, biglandular at base; staminodia small or absent; ovary glabrous.

Mexico: Chiapas, Municipio of Angel Albino Corzo, steep heavily wooded slope near the Rancho Viejo of the Finca Prusia, elev. 2400 feet, Jan. 23, 1968, *Alush Shilom Ton 3560* (LL, type), tree 60 feet tall.

In some flowers, there are four stamens in series III, apparently an abnormality. In all instances where staminodia have been found, they are very small, scarcely more than 0.5 mm. long.

**Nectandra magnifolia** Lundell, sp. nov. — Arbor, ramulis dense puberulis, angulatis, crassis; folia petiolata, petiolo 1.2–2 cm. longo; lamina membranacea, elliptica, ovato-elliptica vel raro obovato-elliptica, 12 25 cm. longa, 4.5–13 cm. lata, apice acuminata, acumine acutiusculo vel obtuso, basi rotundata et acutiuscula; inflorescentia minute puberula, corymboso-paniculata, usque ad 10 cm. longa; pedicelli 3–6 mm. longi; flores ca. 3 mm. longi; stamina 9, 1 1.2 mm. longa; antherae ovato-rotundatae, papillosae; filamenta submulla; staminodia nulla; ovarium glabrum.

A large tree, the branchlets angled, the young growth greyish, densely and minutely puberulent, blackish with age; leaves large, thinly membranaceous, puberulent on both surfaces along the costa and veins, the puberulent petioles canaliculate, 1.2–2 cm. long; leaf blades elliptic or ovate-elliptic, rarely obovate-elliptic, 12 25 cm. long, 4.5–13 cm. wide, apex subabruptly acuminate or acuminate, the acumen acutish or obtuse, rounded and acutish at base, the costa impressed above, elevated beneath, primary lateral veins 6–8 pairs, often drying with reddish hue, reticulation evident beneath, but fine and open; inflorescence slender,

finely puberulent, greyish-black, openly corymbose-paniculate, up to 10 cm. long, with slender peduncle up to 5 cm. long; pedicels slender, 3–6 mm. long, enlarged apically; flowers yellow-green, small, about 3 mm. long; perianth lobes glabrous outside, papillose within, subequal, elliptic, about 2.5 mm. long; stamens 9, 1–1.2 mm. long, the anthers 4–celled, with cells of outer series arcuate; anthers subsessile, papillate, ovate-rounded, the stamens of inner series with pair of small sessile glands at base; staminodia none; ovary glabrous, subequaling the stout style, the stigma subcapitate.

Guatemala: Dept. Alta Verapaz, Chahal, on Sepur Ranch, bordering Chahal River, 3 km. south, Oct. 8, 1968, *Elias Contreras 7865* (LL, type), tree, 70 ft. high, 18 in. diam., flowers yellow-green, *"laurel."*

Notable for its large thin leaves and slender inflorescence with small yellow-green flowers, *N. magnifolia* appears to have affinity to *N. rubriflora* (Mez) Allen. The latter has thicker leaves with 10–12 pairs of lateral veins, and considerably larger reddish flowers.

**Nectandra mopanensis** Lundell, sp. nov. — Arbor; ramuli gracillimi; folia petiolata, petiolo 6–10 mm. longo; lamina chartacea, lanceolata vel anguste elliptica, 7–11 (15) cm. longa, 1.5–3 (5) cm. lata, apice acuminata, basi acuta vel subcuneata; inflorescentia anguste paniculata, 4–5 cm. longa; pedicelli 1.5 mm. longi; flores ca. 6 mm. diam., ca. 2.5 mm. longi, lobis ellipticis, ca. 2.2 mm. longis; stamina 9; staminodia parva, ca. 0.4 mm. longa; ovarium glabrum.

A tree, about 16 m. high, 18 cm. in. diam.; branchlets slender, at first finely pubescent, glabrous with age, drying dark reddish-brown; leaves petiolate, the slender petioles 6–10 mm. long, finely pubescent at first with subappressed hairs, glabrous early, drying reddish-brown; leaf blades pale with the costa and veins whitened, with fine short appressed hairs at first, especially beneath, glabrous at maturity, sometimes barbate in axils of primary veins, chartaceous, lanceolate or narrowly elliptic, usually widest at or near the middle, 7–11 (15) cm. long, 1.5–3 (5) cm. wide, apex acuminate, base acutish to subcuneate, not decurrent, primary veins 5–7, the basal sometimes subtriplinerved and more strongly ascending, the primary veins slender, more conspicuous on undersurface, reticulation rather obscure, the upper surface nearly smooth; inflorescence axillary, narrowly paniculate, in flower 4–5 cm. long, with peduncles about 1.5 cm. long, finely pubescent, the inflorescence in young fruit up to 9 cm. long, glabrescent and drying reddish-brown; pedicels of flowers about 1.5 mm. long; the white flowers about 6 mm. in diam., finely pubescent, scarcely 2.5 mm. long; the perianth lobes elliptic, about 2.2 mm. long, papillose within; stamens 9, anthers 4-celled, the cells in an arc; the two outer series of stamens about 0.5 mm. long, subsessile, the anthers subreniform or quadrate, truncate or submarginate; the three inner

subsessile, about 0.8 mm. long, with pair of large glands at base of each, the glands larger than the quadrate anthers; the staminodia small, stipitiform, triquetrous, acutish, about 0.4 mm. long, glabrous; the glabrous gynoecium about 1.2 mm. long, with short thick style and large discoid stigma; the cupule of immature fruit cyathiform, about 8 mm. in diameter, the margin entire; the fruit ellipsoid.

British Honduras: El Cayo District, Benque Viejo, bordering Rio Mopan, Fall del Carnero, Oct. 7, 1967, *Elias Contreras 7066* (LL, type), tree, 50 ft. high, 15 in. diam., flowers white, "*laurel*"; on riverbank, Rio Mopan, Montero Ranch, in high forest, Oct. 8, 1967, *Contreras 7074* (LL), tree, 65 ft. high, 18 in. diam., "*laurel.*"

It is probable that *N. mopanensis* has affinity to *N. Gentlei* Lundell.

**Nectandra salvadorensis** Lundell, sp. nov. — Arbor, ramulis minute adpresse tomentellis; folia parva, novella minute adpresse tomentella, petiolata, petiolo 1–1.3 cm. longo; lamina subcoriacea, lanceolata vel lanceolato-elliptica, 4–9 cm. longa, 1.3–3 cm. lata, apice acuminata, basi acuta, laxe reticulata, nervis 4–6-paribus; inflorescentia minute tomentella, paniculata, usque ad 6.5 cm. longa; pedicelli 3–10 mm. longi; flores ca. 5 mm. longi; stamina ser. I, II ca. 1.5 mm. longa; ser. III ca. 2 mm. longa, biglandulosa, filamenta subsericea; ovarium glabrum, stylo aequilongo.

A tree, about 25 m. high, the branchlets slender, drying blackish, tomentellous with short minute subappressed hairs, angulate; leaves alternate, petiolate, the petioles canaliculate, slender, 1–1.3 cm. long, minutely tomentellous at first; leaf blades subcoriaceous, minutely subappressed tomentellous at first on both surfaces, persistently so and whitish beneath, lanceolate or lanceolate-elliptic, 4–9 cm. long, 1.3 3 cm. wide, apex acuminate or subacuminate, base acute, not decurrent or recurved, the costa nearly plane above, elevated beneath, the primary lateral veins 4 to 6 pairs, strongly ascending, evident on both surfaces, rather openly reticulate-veined on both surfaces; inflorescences paniculate, few-flowered, axillary or subterminal, up to 6.5 cm. long with peduncles up to 3 cm. long, minutely tomentellous with subappressed hairs; pedicels slender, 3 10 mm. long; flowers minutely appressed pubescent, about 5 mm. long; perianth lobes fleshy, papillose within above, sericeous at base, fully 3 mm. long, reflexed at anthesis; stamens of ser. I & II about 1.5 mm. long, the anthers ovate or suborbicular, the stout filaments about a third as long as anthers, the lower cells larger, apex rounded or subtruncate; stamens of ser. III about 2 mm. long, the stout filaments sericeous, bearing a pair of large cordate glands medially, the anthers scarcely 1 mm. long; staminodia 1.2 mm. long, ovate, acute, the stipe pubescent; ovary glabrous, the style thick, 1.2 mm. long, equaling ovary, the stigma subcapitate, large.

El Salvador: Dept. Santa Ana, cloud forest near summit of Cerro Monte Cristo, 7000-7500 ft., Jan. 18, 1959, *Paul H. Allen 7173* (LL, type), tree, to about 75 ft., flowers whitish; common in primary forest.

A species with small leaves which apparently bears some relationship to *N. Davidsoniana* Allen of Panama.

**Nectandra Tonii** Lundell, sp. nov. — Arbor, ramulis crassis, fulvo-tomentosis; folia fulvo-tomentosa, breviter petiolata, petiolo 2–5 mm. longo; lamina chartacea, anguste lanceolata vel oblanceolata, 10–21 cm. longa, 4–5.5 cm. lata, apice acuminata, basi rotundata, angustata, utrinque reticulata, nervis 9–12-paribus; inflorescentia fulvo-tomentosa, paniculata, 5.5–9 cm. longa; pedicelli 2–4 mm. longi; flores 5.5–6.5 mm. longi; stamina ser. I, II foliosa, ovato-elliptica, ca. 2.5 mm. longa; stamina ser. III ca. 2 mm. longa, basi biglandulosa; staminodia parva; ovarium glabrum.

Tree, about 16 m. tall; branchlets thick, fulvous-tomentose; leaves with very short thick velutinous petioles 2–5 mm. long; leaf blades chartaceous, fulvous-tomentose beneath, less pubescent above, narrowly lanceolate or oblanceolate, 10–21 cm. long, 4–5.5 cm. wide, apex acuminate, base rounded, not recurved or decurrent, primary lateral veins 9–12, impressed slightly above like the costa, prominent beneath, reticulation evident above, coarser below; inflorescence axillary or subterminal, fulvous-tomentose, paniculate, 5.5–9 cm. long, with peduncles up to 5.5 cm. long, flowers crowded, the apex of inflorescence appearing subcapitate; pedicels 2–4 mm. long, tomentose; flowers 5.5–6.5 mm. long; perianth lobes fleshy, papillose and pubescent within, sparingly pubescent outside, oblong-elliptic, about 4 mm. long, ciliolate apically, spreading or reflexed; stamens of ser. I & II large, foliaceous with well developed connective tissue apically, ovate-elliptic, up to 2.5 mm. long, with short thick pubescent filaments; stamens of ser. III about 2 mm. long, with pair of glands at base; staminodia small, about 1 mm. long, the stipe pubescent; ovary glabrous, the style thick.

Mexico: Chiapas, Municipio of Tenejapa, slope with *Heliocarpus*, *Croton*, and *Erythrina*, along a small river in the barrio of Tih Ha', paraje of Mahbenchauk, elev. 3600 ft., Feb. 14, 1967, *Alush Shilom Ton 2014* (LL, type), tree 50 feet tall.

The species is remarkable for its long narrow subsessile leaves rounded at base.

**Nectandra venosissima** Lundell, sp. nov. — Arbor, ramulis novellis sericeo-pubescentibus, glabratis; folia longipetiolata, petiolo usque ad 2.5 cm. longo; lamina lucida, subchartacea, parce sericea, utrinque venosissima, lanceolata vel anguste oblongo-elliptica, apice obtusa, basi acuminata; inflorescentia laxa, usque ad 15 cm. longa, subcorymboso-paniculata, pedicelli 6–12 mm. longi; stamina 9, ca. 2 mm. longa; antherae

oblongo-quadratae, papillosae, truncatae vel emarginatae; filamenta hirtella, crassa; staminodia ca. 1 mm. longa, ovato-cordata, acuta; ovarium glabrum.

A large tree, 90 ft. high, 30 in. diam., branchlets rather stout, angled, finely sericeous at first, glabrate, drying dark reddish-brown; leaves with long slender petioles up to 2.5 cm. long, the petioles finely sericeous at first, shallowly canaliculate toward base; leaf blades thin, subchartaceous, finely short sericeous at first on both surfaces, glabrate, lanceolate or narrowly oblong-elliptic, 7.5–18 cm. long, 2.5–5.5 cm. wide, narrowed to an obtuse apex or the apex subacuminate and obtuse, base sometimes recurved and decurrent on upper part of petiole, acute or acuminate, the blade shining and conspicuously areolate-reticulate on both surfaces, the costa plane above, prominent beneath, the primary lateral veins 6 to 8 pairs, barbate in axils; inflorescence axillary, subcorymbose-paniculate, lax, slender, equaling or exceeding the leaves, with long peduncle up to 10 cm. long, finely pubescent; pedicels slender, 6–12 mm. long; flowers (past anthesis) finely pubescent, the perianth lobes elliptic, about 5 mm. long, 3–4 mm. wide, papillose within; stamens 9, anthers 4-celled, the cells of outer series arcuate; outer stamens about 2 mm. long, the filaments stout, pubescent, about 0.4 mm. long, the anthers oblong-quadrate, subemarginate, papillose; inner 3 stamens 2 mm. long, with short filaments and pair of large sessile glands at base, the anthers oblong-quadrate, truncate; staminodia 1 mm. long, filaments narrowed above and pubescent, the staminodia ovate-cordate, acute; ovary glabrous, the style short, the stigma capitate; cupule edge smooth, pubescent.

Guatemala: Dept. Peten, La Cumbre, west of km. 145 of Cadenas Road, May 15, 1967, *Elias Contreras 6915* (LL, type), tree, 90 ft. high, 30 in. diam., "*laurel.*"

With its long petioles and rather well developed staminodia, the species could well go into *Persea*, but the cells of the two outer series of anthers are arcuate. The fine sericeous indument of all tender parts, the conspicuous reticulation of both leaf surfaces, the long slender inflorescences with pedicels up to 1 cm. in length set *N. venosissima* apart from other species of the area. The collection is past anthesis, and measurements of flower parts were made from dried fragments.

**Ocotea racemiflora** Lundell, sp. nov. — Arbor parva; ramuli dense puberuli, gracillimi; folia petiolata, petiolo 5–11 mm. longo; lamina membranacea vel subchartacea, subglabra, subtus barbata, obovata vel elliptica, 5–12 cm. longa, 2.5–5 cm. lata, apice subabrupte acuminata, acumine obtuso, basi acuta vel subcuneata; inflorescentia racemosa, minute puberula, usque ad 3 cm. longa; flores ca. 3 mm. longi, lobis oblongo-ellipticis, 2–2.4 mm. longis; stamina 9; staminodia nulla; ovarium glabrum; pedicelli fructiferi usque ad 6 mm. longi, apice 3 mm. diam.; cupula parva, usque ad 8 mm. diam.

A tree, about 13 m. high, 12.5 cm. in diameter; branchlets rather slender, minutely and densely puberulent; leaves with blackened petioles 5–11 mm. long, the petioles puberulent and sparingly strigillose; leaf blades thin, membranaceous or subchartaceous, puberulent above along midvein, barbate beneath in axils of primary veins and with a few short scattered appressed hairs, obovate, obovate-elliptic or elliptic, 5–12 cm. long, 2.5–5 cm. wide, apex subabruptly acuminate, the acumen obtusish, base acute or subcuneate, entire, openly reticulate-veined beneath, nearly smooth and somewhat shiny above, the primary lateral veins 4 to 6 pairs, slender and elevated beneath, less evident above, the costa elevated below, nearly plane on upper surface; inflorescence (pistillate) small, racemose, up to 3 cm. long, puberulent; flowers (pistillate) finely appressed pubescent, with short pedicels up to 1.5 mm. long, the flowers about 3 mm. long; tube short, obconical; perianth lobes finely pubescent within, oblong-elliptic, 2–2.4 mm. long, unequal, rounded at apex; stamens 9, up to 1.3 mm. long, the 3 inner with pair of subsessile glands; anthers ovate-triangular, obtuse-rounded, 4-celled; staminodia none; ovary glabrous, merging above into thick style; stigma large, discoid; pedicel of fruit obconical, to 6 mm. long, expanded to above 3 mm. in diam. at apex; cupule shallow, thin, up to 8 mm. in diam., including persistent perianth lobes; fruits (immature) ellipsoid, apiculate.

Guatemala: Dept. Alta Verapaz, Chahal, airport, in high forest, 3.5 km. east, Oct. 12, 1968, *Elias Contreras 7904* (LL, type), tree, 40 ft. high, 5 in. diam., "*laurel.*"

Evidently a dioecious species, *O. racemiflora* appears to have affinity to *O. cucuneata* Lundell. It differs in leaf form and venation, pubescence, and in having somewhat larger flowers borne in very short racemes.

**Ocotea tenejapensis** Lundell, sp. nov. — Arbor, ramulis fulvo-tomentosis; folia parva, petiolata, petiolo 5–7 mm. longo; lamina chartacea, subbullata, elliptica, oblanceolato-elliptica vel lanceolata, 6–10.5 cm. longa, 2–4 cm. lata, apice subabrupte acuminata, basi rotundata, utrinque parce subadpresse pilosa, barbata, nervis 5–8-paribus; inflorescentia paniculata, parce subadpresse pilosa, 4.5 10 cm. longa; pedicelli 3.5–6 mm. longi; flores parvi, ca. 3 mm. longi; stamina ser. I, II ca. 1.5 mm. longa; ser. III ca. 1.3 mm. longa, basi biglandulosa; staminodia parva; ovarium glabrum.

Tree, about 8 m. tall; branchlets slender, tawny-tomentose with distinct nearly erect hairs, essentially velutinous; leaves small, short, petiolate, the petioles 5–7 mm. long, canaliculate, subvelutinous; leaf blades chartaceous, subbullate, elliptic, oblanceolate-elliptic or lanceolate, 6–10.5 cm. long, 2–4 cm. wide, apex subabruptly acuminate, base rounded and usually acutish, not recurved, upper surface with scattered hairs, barbate in the axils beneath and subappressed pilose along the costa and veins, primary lateral veins 5–8 pairs, costa and primary veins impressed above,

prominent beneath; inflorescence paniculate, axillary or subterminal, 4.5–10 cm. long with slender peduncles up to 5 cm. long, sparingly subappressed pilose; pedicels slender, 3.5–6 mm. long; flowers glabrous, about 3 mm. long; perianth lobes fleshy, pellucid-punctate, minutely ciliolate-erose at apex, lanceolate, fully 2.5 mm. long, not reflexed at anthesis; the receptacle pubescent; stamens of ser. I & II about 1.5 mm. long, the anthers punctate, quadrate-orbicular or ovate-orbicular, obscurely apiculate, the stout filaments about half as long as anthers; stamens of ser. III about 1.3 mm. long, the stout filaments subequaling anthers, with pair of sessile glands at base; staminodia stipitiform, up to 1 mm. long; ovary glabrous, the style thick, the stigma large and subcapitate.

Mexico: Chiapas, Municipio of Tenejapa, slope with *Quercus* and *Liquidambar* at Paraje Shohleh, elev. 8200 ft., April 6, 1966, *Alush Shilom Ton 779* (LL, type), tree 25 ft. tall.

**Persea petenensis** Lundell, sp. nov. – Arbor, ramulis crassiusculis, minute tomentellis; folia alternata, petiolata, petiolo usque ad 2.3 cm. longo; lamina subchartacea, lanceolata vel anguste lanceolato-elliptica, 9–16 cm. longa, 2.5–4.7 cm. lata, apice acuta, subacuminata vel obtusa, basi acutiuscula, nervis 6–8-paribus; inflorescentia tomentella, corymboso-paniculata, usque ad 18 cm. longa, longipedunculata; flores parvi, lobis ovato-lanceolatis, 2–4 mm. longis, tomentellis; stamina 9, ser. I & II 2–2.4 mm. longa; stamina ser. III 3 mm. longa, biglandulosa; staminodia cordato-sagittata, 1.5 mm. longa, acuta; ovarium glabrum, 1 mm. longum, stylo 3 mm. longo.

A tree, about 28 m. high, 28 cm. in diam., the branchlets rather slender, drying blackish, angled, finely tomentellous at first; leaves petiolate, the petioles slender, finely tomentellous at first, 1–2.3 cm. long; leaf blades thin, subchartaceous, paler beneath, lanceolate or narrowly lanceolate-elliptic, 9–16 cm. long, 2.5–4.7 cm. wide, apex acute, short acuminate or obtuse, base acutish, the sides often unequal, at first finely pubescent with short hairs, costa shallowly impressed above, prominent beneath, the primary lateral veins 6 to 8 pairs, rather slender, finely areolate on both surfaces; inflorescence axillary, laxly corymbose-paniculate, pale tomentellous with short fine hairs, often exceeding leaves, the slender peduncles up to 10 cm. long; flowers small, tomentellous, subsessile, the pedicels up to 1.5 mm. long; the perianth lobes unequal, ovate-lanceolate, the shorter about 2 mm. long, the longer inner ones about 4 mm. long, pubescent within; stamens of two outer series 2–2.4 mm. long, the pubescent filaments equaling the ovate-oblong rounded anthers; stamens of third series 3 mm. long, the anthers 1 mm. long, the stout pubescent filaments with a medial pair of subreniform glands; staminodia large, pubescent, 1.5 mm. long, cordate-sagittate, acute, with conspicuous stipe;

gynoecium glabrous, about 4 mm. long, the style 3 mm. long, the stigma inconspicuous.

Guatemala: Dept. Peten, Remate, on Tikal Road, in high forest, about 8 km. NE of the village, April 27, 1960, *Elias Contreras 903* (LL, type), tree, 20 in. diam. 90 ft. high, flowers yellow.

*P. petenensis* is notable for its slender long-petioled finely areolate leaves, long slender corymbose-paniculate inflorescence, and the fine white indument of all parts.

**Phoebe trinervis** Lundell, Phytologia 12: 245. 1965.

British Honduras: El Cayo District, Benque Viejo, bordering Rio Mopan, in high forest, Oct. 21, 1967, *Elias Contreras* 7157 (LL), tree, 50 ft. high, 8 in. diam., *"laurel."*

The stamens of the two outer series in *P. trinervis* are 1 to 1.2 mm. long, the anthers oblong, the filaments about half as long as the anthers. The stamens of series three are fully 1.4 mm. long, with a pair of sessile globose glands at base, slender oblong anthers, and filaments nearly as wide and fully half as long as anthers. The staminodia are cordate, stipitate, acute, about 0.75 mm. long. The ovary is glabrous. The deciduous perianth lobes leave a scalloped margin on cupule. The species may have affinity to *P. areolata* Lundell, but the leaf reticulation is much finer in *P. trinervis* and the venation altogether different, strongly triplinerved above base.

## RUTACEAE

**Amyris attenuata** Standl., Tropical Woods 37: 28. 1934.

Guatemala: Dept. Peten, km. 148 of Cadenas Road, in high forest on top of rocky hill, 1 km. of the road, Nov. 8, 1966, *Elias Contreras 6551* (LL), small tree, 25 ft. high, 4 in. diam.

I have examined the type of *A. attenuata*, *J. B. Edwards P-653* (F). *Contreras 6551*, except for less reticulation of the leaves, agrees closely with the Honduran type. This is the first record from Guatemala.

*A. belizensis* Lundell, another unifoliate species of the region, is not to be confused with *A. attenuata*.

**Amyris chiapensis** Lundell, sp. nov. — Arbor; ramuli novelli minute villosi; folia opposita, 3–7-foliolata, foliola petiolata, membranacea, glabra, lanceolata vel lanceolato-elliptica, 8–15 cm. longa, 3–5.5 cm. lata, apice acuminata, basi acuta; inflorescentia paniculata, usque ad 9 cm. longa, minute villosa; flores tetrameri; stamina 3.5 4.5 mm. longa; ovarium basi minute villosum.

Tree, about 13 m. high; branchlets slender, finely short villous at first, terete; leaves opposite, 3–5(7)-foliolate, the rachis terete, evidently finely short villous at first; leaflets large, membranaceous, glabrous,

slightly paler beneath, lanceolate or lanceolate-elliptic, 8–15 cm. long, 3–5.5 cm. wide, apex acuminate, base acute or subacuminate, midvein plane above, elevated beneath, the primary lateral veins slender, 8 to 11 pairs, strongly ascending at base of vein, widely arcuate above, the petiolules of lateral leaflets 5–8 mm. long, those of terminal leaflets up to 2.5 cm. long; inflorescence terminal, persistently short villous with fine hairs, paniculate, up to 9 cm. long; pedicels 1–2 mm. long; calyx lobes ovate or ovate-triangular, up to 0.9 mm. long, acutish, finely pubescent; petals glabrous, obovate, about 4 mm. long, 2.5 mm. wide, rounded at apex; stamens 3.5–4.5 mm. long; ovary finely pubescent at base, otherwise glabrous; stigma large, capitate.

Mexico: Chiapas, Municipio of Ocozocoautla de Espinosa, steep heavily wooded slope on the southwest side of the Presa de Malpaso, elev. 2200 ft., Mar. 2, 1968, *Alush Shilom Ton 3762* (LL, type), flowers white; tree 40 ft. tall.

*A. chiapensis* has very thin leaflets with comparatively long petiolules. It has some similarities to *A. sylvatica* Jacq., but that species has alternate smaller leaves and smaller flowers.

**Amyris guatemalensis** Lundell, sp. nov. – Arbor; ramuli crassiusculi; folia opposita vel subopposita; foliola 3 vel 5, adulta glabra, coriacea, integra, lanceolata vel elliptico-lanceolata, 6.5–11 cm. longa, 3–4.5 cm. lata, apice acuminata, basi acuta vel acutiuscula; inflorescentia paniculata, usque ad 7 cm. longa, parce puberula; pedicelli crassi, 1.5–3 mm. longi; calyx persistens, laciniis ovato-triangularibus; drupa ellipsoidea.

A tree 20 m. high, about 20 cm. in diameter; branchlets glabrous and leaves glabrous at maturity; leaves opposite or subopposite, large; leaflets 3(2) or 5(4), stoutly petioluled, glabrous at maturity, the petiolules of lateral leaflets 2–4 mm. long; blades of leaflets coriaceous, paler beneath, entire, lanceolate or elliptic-lanceolate, (4.5) 6.5–11 cm. long, (1.8) 3–4.5 cm. wide, apex sharply acuminate, base acute or acutish, glabrous at maturity but with remnants of short appressed pubescence at base on some leaves, midvein slightly elevated above, conspicuously so beneath, the primary veins very slender on both surfaces; inflorescence terminal or lateral in the axils of the upper leaves, up to 7 cm. long, the peduncles and branches rather stout, minutely and finely pubescent; pedicels thick, 1.5–3 mm. long; calyx lobes ovate-triangular, about 0.6 mm. long, ciliate; fruits ellipsoid (immature), apparently glabrous.

Guatemala: Dept. Alta Verapaz, Chahal, El Mago, in *zapotal* on top of rocky hill, 1.5 km. north, Oct. 26, 1968, *Elias Contreras 8020* (LL, type), tree, 65 ft. high, 8 in. diam.

Probably related to *A. elemifera* L., *A. guatemalensis* is a robust species with large rigidly coriaceous leaves, and stout inflorescences. Young growth is probably pubescent, for remnants of short fine pubescence persist on most parts.

## CELASTRACEAE

**Wimmeria montana** Lundell, Wrightia 4: 92. 1968.

Mexico: Chiapas, Municipio of Tenejapa, slope with *Quercus* and *Abies* in Colonia Achlum, elev. 8600 feet, April 26, 1966, *Alush Shilom Ton 902* (LL, type), tree 110 feet tall. Municipio of Amatenango del Valle, grassy slope with *Quercus* south of the center of Amatenango del Valle, elev. 5900 feet, Mar. 14, 1967, *Ton 2156* (LL).

The second collection of this recently described tree has maturing fruits up to 4 cm. long, 3.6 cm. wide, much larger than in the type. Flowers of this fine species are still unknown.

## VITACEAE

**Cissus oaxacana** Lundell, sp. nov. — Frutex scandens, ramis gracilibus, striatis, hirsutis; folia longipetiolata, petiolo usque ad 5 cm. longo; lamina membranacea, basi hirsuta, elliptica vel obovato-elliptica, 6–10.5 cm. longa, 2.5–4.7 cm. lata, apice acuta, basi late cuneata, trinervia, acute serrulata; cymae parvae, hirsutae; pedicelli 1–1.5 mm. longi; pedicelli fructiferi usque ad 7 mm. longi; flores ca. 2.5 mm. longi; calyx ca. 1.5 mm. diam.; corolla glabra.

A slender vine, the branches striate, pubescent, densely so at the nodes, glabrescent with age; leaves simple, thin, glabrous at maturity except at base on both sides, petiolate, the petioles slender, pubescent at first, up to 5 cm. long; leaf blades elliptic or obovate-elliptic, 6–10.5 cm. long, 2.5–4.7 cm. wide, apex acute, base broadly cuneate, trinerved, the margin serrulate with rather remote incurved subulate-tipped teeth, primary veins 3 or 4 pairs above base, slender but visible on both surfaces; cymes opposite the leaves, small, pedunculate, about 3 cm. long including peduncle about 1 cm. long, pubescent; pedicels of flowers pubescent, slender, 1–1.5 mm. long, accrescent, up to 7 mm. long in young fruit; flowers including calyx, about 2.5 mm. long; calyx verrucose, glabrous, about 1.5 mm. wide; corolla glabrous.

Mexico: Oaxaca, District of Tuxtepec, Chiltepec and vicinity, alt. about 20 m., 1940-1941, *G. Martinez-Calderon 185* (LL, type), vine, in llanos.

The species has small cymes shorter than the petioles, elliptic long-petiolate leaves cuneate at base, and straggly pubescence. *C. subtruncata* Rose, described from Oaxaca, may have some relationship to *C. oaxacana*, but that species has different shaped leaves and much larger cymes.

**Cissus pallidiflora** Lundell, sp. nov. — Frutex scandens, ramis rubro-verrucosis, ramulis, petiolis, inflorescentiis foliisque hirtellis; folia parva, petiolata, petiolo usque ad 3 cm. longo; lamina membranacea, lanceolata, hastata, vel ovata et 3-lobata, apice acuminata, basi cordata, subcor-

data vel subtruncata, acute serrato-denticulata; cymae parvae, hirtellae, pedunculatae; pedicelli ca. 2 mm. longi, puberuli; pedicelli fructiferi usque ad 7 mm. longi; bacca subglobosa, ca. 8 mm. longa.

A slender vine, vegetative parts hirtellous or short villous, the branches whitish and conspicuously red-verrucose; leaves simple, small, petiolate, the petioles slender 5–10 (30) mm. long, densely hirtellous; leaf blades very thin, hirtellous on both surfaces, lanceolate, hastate, or ovate and sharply 3-lobed, 2.5–5 (9.5) cm. long, 1–2.4 (3.5) cm. wide, apex acuminate, base cordate, subcordate or subtruncate, the margin rather remotely serrate-denticulate, the teeth acuminate, the lobes acute or short acuminate, 5-nerved at base, the midvein conspicuous, the primary veins 3 or 4 pairs; cymes pedunculate, hirtellous, about 2 cm. long and wide in flower, many-flowered; pedicels slender, puberulent, about 2 mm. long in flower, accrescent, up to 7 mm. long in fruit; calyx puberulent, about 1.5 mm. in diameter, the 4 lobes rounded, shallow; corolla glabrous, 2 mm. long, lobed to the middle, the lobes cucullate, ovate, obtuse; disk thin, elevated, conspicuous; stamens included; ripe fruits black, subglobose, ca. 8 mm. long when dry.

Guatemala: Dept. Peten, Tikal, in secondary growth bordering airfield, May 4, 1959, *C. L. Lundell 15953* (LL, type), vine, flowers white; Tikal, in *ramonal* covering the ruins, July 29, 1959, *Elias Contreras 47* (LL), vine with black fruits. Also, *Lundell 15824* (LL), *15939* (LL) from Tikal.

Probably near the glabrous-leaved *C. oxydon* Planch. which is considered a variant of *C. sicyoides* L. The Tikal vine is hirtellous, the slender stems are whitened and red-verrucose, and the pubescent very thin small leaves are sometimes 3-lobed or hastate. The population appears to be quite distinct from *C. sicyoides*, a poorly understood very variable taxon common to the lowlands of the area.

**Cissus Matudae** Lundell, sp. nov. — Frutex scandens, ramulis, petiolis, inflorescentiis foliisque villosis; folia 3-foliolata, membranacea, petiolata, petiolo usque ad 2 cm. longo; foliola oblanceolata, 4.5–9 cm. longa, 1.5–2.5 cm. lata, serrata, apice acuta, basi acuta vel cuneata; cymae longipedunculatae, usque ad 10 cm. longae; pedicelli 2–3 mm. longi; calyx ca. 1 mm. diam.; corolla ca. 1.5 mm. longa, minute pulverulenta.

A slender vine, the branches at first densely villous, glabrescent; leaves trifoliolate, petiolate, the petioles villous, up to 2 cm. long; leaflets thin, villous on both surfaces, rather remotely but conspicuously serrate with incurved teeth, the teeth acuminate; lateral leaflets sessile, oblanceolate, 4.5–7 cm. long, 1.5–2.5 cm. wide, apex acute, narrowed at base; terminal leaflets oblanceolate, up to 9 cm. long including slender petiole, 2–2.5 cm. wide, apex acute, base cuneate, primary lateral veins of leaflets slender, 4 to 6 pairs, strongly ascending; cymes long-pedunculate, up to 10 cm.

long including peduncle 6.5 cm. long, villous, multi-branched, many-flowered; pedicels slender, pubescent, 2–3 mm. long; calyx 1 mm. in diameter, the lobes rounded; corolla about 1.5 mm. long, minutely pulverulent.

Mexico: Chiapas, Chicomuselo, alt. 800 m., July 14, 1941, *Eizi Matuda 4490* (LL, type), vine.

The narrow oblanceolate very thin leaflets, with the terminal leaflet cuneate at base, and the villous indument of all vegetative parts are distinctive characteristics of the taxon. *C. Matudae* probably has affinity to *C. salutaris* H.B.K.

## THEACEAE

**Symplococarpon flavifolium** Lundell, Bull. Torrey Club 69: 393. 1942.

Mexico: Chiapas, Las Cadenas near Escuintla, Jan. 1938, *Eizi Matuda 1883* (LL, isotype), tree, 5 m. high, 15–20 cm. diam.; Cascada near Siltepec, alt. 1600 m., in woods, Mar. 1, 1945, *Matuda 5169* (LL), tree, 8–10 m. high; Pinabeto, near Motozintla, alt. 2586 m., in advanced forest, May 9, 1945, *Matuda 5480* (LL), tree, 5–6 m. high (flowers).

Described from fruiting material, *Matuda 5480* is in flower. The hirsute apex of ovary and small leaves immediately distinguish *S. flavifolium* from *S. Purpusii* (Brandegee) Kobuski of Chiapas, which has similar stamens with mucro of the anthers over 1 mm. long. All other species in the genus have the mucro much shorter (up to 0.5 mm. long according to Kobuski, Jour. Arnold Arb. 22: 192. 1941). The anthers are about 1 mm. long, the filaments are thickened at base, and the two free glabrous styles are about 3 mm. long, all features which further mark *S. flavifolium*.

**Symplococarpon guatemalense** Lundell, sp. nov. — Arbor parva, ramulis angulatis, novellis parce sericeis; folia petiolata, petiolo 3–5 mm. longo, canaliculato; lamina chartacea, elliptica vel oblanceolato-elliptica, 3–9.5 cm. longa, 1.5–4 cm. lata, apice obtuse subacuminata, acumine retuso, basi acuta, margine crenulato-serrulata, costa supra impressa, venis utrinque prominentibus; flores axillares, 1–3-fasciculati; pedicelli 4.5–7 mm. longi; bracteolae parvae, ovato-rotundatae, ca. 0.6 mm. longae; hypanthium glabrum; sepala late ovato-rotundata, 0.8–1.2 mm. longa, 1.4–1.6 mm. lata, minute ciliolata, glabra; petala ovalia, 4–4.5 mm. longa, glabra; stamina 2–3.5 mm. longa; antherae parvae, 0.6–0.8 mm. longae; ovarium semi-inferium, ovarii parte superiore hirsuta; styli 2, liberi, ca. 2.5 mm. longi.

A small tree, branchlets rather short, slender, at first sharply angled, glabrescent, the buds gray-sericeous; leaves short petiolate, the petioles 3–5 mm. long, slender, canaliculate, at first with a few short appressed hairs; leaf blades chartaceous, elliptic or oblanceolate-elliptic, 3–9.5 cm. long, 1.5–4 cm. wide, apex obtusely subacuminate, the acumen retuse,

base acute, margin crenulate-serrulate; venation conspicuous on both surfaces and openly reticulate, the midvein and primary veins impressed above, especially the midvein, elevated beneath, the primary veins 5 or 6 pairs; flowers axillary, in fascicles of 1–3, mostly erect; pedicels slender, 4.5–7 mm. long; the bracteoles persistent at base of hypanthium, minute, ovate-rounded, about 0.6 mm. long, ciliolate; hypanthium glabrous, shallow; sepals broadly ovate-rounded, 0.8–1.2 mm. long, 1.4–1.6 mm. wide, minutely ciliolate, apiculate, glabrous; petals oval, 4–4.5 mm. long, glabrous; stamens 27–31, 2–3.5 mm. long; anthers oblongish, 0.6–0.8 mm. long, tapering into mucro 0.4–0.5 mm. long; filaments slightly thickened at base; the superior part of ovary finely hirsute, the two styles divided to base, up to 2.5 mm. long, with a few appressed hairs at base; ovary 2-celled, partly inferior, with 2 or 3 ovules in each cell.

Guatemala: Dept. El Quiche, Nebaj, in low forest, about 7 km. SWW, alt. about 7000 ft., June 22, 1964, *Elias Contreras 5082* (LL, type), tree, 30 ft. high, 5 in. diam., flowers white.

Of possible affinity to *S. Brenesii* Kobuski, *S. guatemalense* differs at once in its leaves with sharply impressed midvein above, shorter petioles, chartaceous leaves, sharply angled branchlets and mostly erect flowers on shorter pedicels. *S. lucidum* Lundell of British Honduras is a species of lower elevations with finer reticulate-veined, lanceolate leaves, and sepals with conspicuous long cilia. In *S. guatemalense* the sepals are minutely ciliolate. The venation pattern of the two species is markedly different.

## VIOLACEAE

**Orthion montanum** Lundell, sp. nov. — Arbor, ramulis gracilibus, glabris; folia glabra, petiolata, petiolo gracili 4–6 mm. longo; lamina membranacea, serrulata, obscure reticulata, anguste elliptico-lanceolata vel oblanceolata, 6.5–13 cm. longa, 1.2–2.8 cm. lata, utrinque acuminata; flores cymosi, cymis usque ad 3 cm. longis, paucifloris, brevipedunculatis; pedicelli fructiferi ca. 3 mm. longis; capsula ca. 1 cm. longa, rotundata.

Tree, about 13 m. tall, entirely glabrous, the branchlets slender; leaves glabrous, petiolate, the petioles slender, 4–6 mm. long, canaliculate; leaf blades drying pale green, thin, membranaceous, narrowly elliptic-lanceolate or oblanceolate, 6.5–13 cm. long, 1.2–2.8 cm. wide, widest at or near the middle, attenuate to both ends, apex and base acuminate, the margin conspicuously serrulate, costa elevated above as a rather sharp medial line, prominent beneath, primary lateral veins very slender, 7–9 pairs, the reticulation obscure on both surfaces; inflorescences solitary, cymose, few-flowered, short, less than 3 cm. long, including peduncle up to 2 cm. long, glabrous; fruits small, about 1 cm. long, drying rough and somewhat warty; the seeds smooth, up to 6 mm. in diameter.

Mexico: Chiapas, Municipio of Jitotol, steep wooded slope on the bank of the Rio Hondo, 4 miles north of Jitotol on road to Pueblo Nuevo Solistahuacan, elev. 5500 feet, Feb. 12, 1965, *D. E. Breedlove* 8959 (LL, type), tree 40 feet tall.

All the other species of *Orthion* grow in wet forest at or near sea level. This is the first montane tree in the genus. Its affinity is nearest *O. malpighiifolium* (Standl.) Standl. & Steyerm., which has lanceolate leaves widest below the middle and abruptly caudate-acuminate at apex and acute at base, cymes aggregated at the apex of the branchlets, and primary veins of leaves more widely ascending. In *O. montanum* the very narrow thin leaves are widest at or near the middle, attenuate to apex and base, sharply serrulate, with primary lateral veins more sharply ascending, and reticulation rather obscure. The short solitary few-flowered cymes less than 3 cm. long, and small rugulose rounded capsules not over 1 cm. long are other features by which the taxon may be recognized.

## MYRTACEAE

**Calyptranthes Millspaughii** Urb., Symb. Ant. 7: 294. 1912; McVaugh, Fieldiana Bot. 24: 304. 1963; l.c. 29: 405. 1963.

Guatemala: Dept. Peten, Dos Lagunas, Ixcanrio, on Melchor de Mencos Road, in high forest, 12 km. ES, May 21, 1969, *Elias Contreras 8613* (LL), tree, 50 ft. high, 8 in. diam., "*guayabillo.*"

This poorly known species has not been collected previously in Guatemala, but is recorded from northern British Honduras by McVaugh (l.c.).

**Calyptranthes pallens** Griseb., Veg. Kar. 67. 1857; McVaugh, Fieldiana Bot. 24: 304. 1963; l.c. 29: 406. 1963.

Guatemala: Dept. Peten, Dos Lagunas, El Cedro, on Ixcanrio Road, km. 8, in *ramonal*, April 18, 1969, *Elias Contreras 8336* (LL), tree, 65 ft. high, 15 in. diam., flowers white, "*guayabillo.*" Also, *Contreras 8458* (LL) and *8474* (LL) from same general locality.

These are the first records of *C. pallens* var. *pallens* from Guatemala. They match *George R. Proctor 23711* (LL) and *26519* (LL) from Jamaica very closely.

**Eugenia amatenangensis** Lundell, Wrightia 3: 10. 1961.

Mexico: Chiapas, Municipio of Amatenango del Valle, Amatenango del Valle, riverside, 1835 m., June 12, 1945, *Eizi Matuda 5832* (LL, type), a small tree, 2 m. high, flowers red; grassy slope with *Quercus* south of the center of Amatenango del Valle, elev. 5900 feet, Mar. 14, 1967, *Alush Shilom Ton 2138* (LL). Municipio of Zinacantan, heavily wooded ravine below Kukchen in Paraje Apas, elev. 4500 feet, Mar. 31, 1966, *Robert M. Laughlin 599* (LL), tree 20 feet tall. Municipio of Cintalapa, wooded slope along creek bank 27 miles west of Cintalapa along Mexican High-

way 190, elev. 2900 feet, May 17, 1965, *D. E. Breedlove 9962* (LL), tree 30 feet tall.

Previously known only from the type collection, this species of middle altitudes apparently is quite common.

**Eugenia magoana** Lundell, sp. nov. – Arbor; ramuli minute puberuli; folia petiolata, petiolo glabro, 5–8 mm. longo; lamina glabra, elliptica, 5–9.5 cm. longa, (2.5) 3.5–5 cm. lata, apice subabrupte obtuse acuminata, basi acuta; inflorescentia minute puberula, racemosa; pedicelli 1–2 (3) mm. longi; calycis lobi inaequales, majores ca. 1.5 mm. lati et longi; fructus globosus, 10–13 mm. diam.; discus 2 mm. diam.

A tree up to 18 m. high, 30 cm. in diam., the branchlets and inflorescence puberulent (rather sparingly in fruit); leaves entirely glabrous; petioles slender, glabrous, canaliculate, 5–8 mm. long; leaf blades membranous, dark green above, paler beneath, usually elliptic, sometimes lanceolate-elliptic, 5–9.5 cm. long, (2.5) 3.5–5 cm. wide, apex subabruptly short acuminate, the acumen obtuse, base acute, the midvein slightly elevated to nearly plane with a narrow depressed medial line, slender but more prominent beneath, the lateral veins slender, inconspicuous on both surfaces, but elevated slightly beneath; inflorescence an abbreviated axillary raceme, the axis usually short, sometimes up to 1.8 cm. long, the decussately opposite fruits on pedicels 1–2 (3) mm. long; bracteoles persistent but not connate, ovate-rounded, about 0.6 mm. wide at base, ciliolate; flowers unknown; fruit globose, glabrous, glandular-verrucose, the single seeded 10–13 mm. in diam.; the sepals crowning the fruits in unequal pairs, the larger ones about 1.5 mm. wide and long; disk on fruits 2 mm. in diam.

Guatemala: Dept. Alta Verapaz, Chahal, El Mago, 800 m. south in *corozal*, Oct. 24, 1968, *Elias Contreras 8001* (LL, type), tree, 40 ft. high, 5 in. diam., fruits reddish. Also, *Contreras 7996* (LL), *8003* (LL) and *8030* (LL) from the same locality, all in fruit.

I identified these collections as *E. tikalana* Lundell, and duplicates were distributed under that name. Typical *E. tikalana* is an arborescent shrub with fruits less than 1 cm. in diameter, leaves half as large and often yellowish, with shorter puberulent petioles, longer pedicels, and a small disk 1–1.3 mm. wide. In *E. magoana* the petioles are glabrous and twice as long, the leaf blades larger and mostly broadly elliptic, the pedicels mostly 1–2 mm. long, and the disk crowning the large fruits fully 2 mm. wide. Both *E. Capuli* (Schlecht. & Cham.) Berg and *E. tikalana* Lundell have been collected in the same locality in Alta Verapaz by Contreras and the specimens are in the Lundell Herbarium. All three species have puberulent twigs and inflorescences, and I consider that they are closely related, but quite distinct taxa.

**Eugenia perpunctata** Lundell, sp. nov. — Arbor parva, ramulis subgracilibus; folia petiolata, petiolo 7–12 mm. longo; lamina elliptica vel lanceolato-elliptica, 8–13 cm. longa, 3–6.5 cm. lata, apice subabrupte late acuminata, acumine obtuso, basi acuta, subcoriacea, perpunctata; inflorescentia rufo-subsericea, axillaris, racemosa, 2–5 mm. longa; pedicelli 3–4 mm. longi; hypanthium campanulatum; sepala usque ad 3.5 mm. lata, 3 mm. longa; petala late elliptica; discus 3.5–4 mm. latus; ovula ca. 12.

Tree about 7 m. high, 10 cm. diam., the branchlets and inflorescence persistently appressed pubescent with coppery mostly dibrachiate hairs, the young leaves pubescent on both surfaces with minute appressed dibrachiate hairs, glabrescent at maturity; leaves with canaliculate petioles 7–12 mm. long; leaf blades elliptic or lanceolate-elliptic, 8–13 cm. long, 3–6.5 cm. wide, apex obtusely acuminate, base acute and decurrent, entire, subcoriaceous, paler beneath, perpunctate, midvein impressed above, glabrous at maturity, primary lateral veins slender, 10-12 on each side, inconspicuous, the marginal vein 2–4 mm. from margin; inflorescence a short crowded axillary raceme, with a second raceme often superposed, the axis thick, 2–5 mm. long, bearing up to 4 opposite decussate pairs of flowers on stout pedicels 3-4 mm. long; bracts indurate, broadly triangular, about 1 mm. long; bracteoles thick, persistent, lanceolate, 2–2.5 mm. long, glabrous within except for row of hairs at base; buds 5–6 mm. long, the campanulate appressed-pubescent hypanthium 3 mm. long; calyx lobes broadly rounded, appressed pubescent on both surfaces, subequal, the longer pair about 3.5 mm. wide, 3 mm. long; petals broadly elliptic, 4–5 mm. long, yellowish; disk concave, 3.5–4 mm. wide, pubescent; style stout, 8 mm. long; stamens numerous; ovary bilocular, the ovules about 12 in a compact cluster in each locule.

Guatemala: Dept. Alta Verapaz, Sebol, in high forest ca. 100 m. SW of Rio Sebol, April 30, 1964, *Elias Contreras 4557* (LL, type), tree, 4 in. diam., 20 ft. high, flowers yellow-white.

In *E. perpunctata* the bracteoles are persistent at anthesis, the coppery pubescence is subappressed, the primary veins of the leaves are 10 to 12 and without conspicuous intermediate veins, and the leaves are densely perpunctate with the glands visible to the naked eye. The tomentum of *E. savannarum* Standl. & Steyerm., a species to which *E. perpunctata* is closely related, is dense, loose and reddish, the bracteoles are deciduous, and the fruits are stipitate. In *E. savannarum* the more numerous lateral veins and very evident intermediate veins are characteristics of the species. I have examined the type of *E. savannarum*, *Julian A. Steyermark 45710* (F), and an immature fruiting collection, *Contreras 5359* (LL) from Sebol, Alta Verapaz appears to be referable here. A series of other fruiting collections from central Peten may represent *E. savannarum*,

but flowering material is needed to make a final determination. All have stipitate fruits and deciduous bracteoles.

**Eugenia tenejapensis** Lundell, sp. nov. — Frutex, ca 3 m. altus; ramuli graciles, novelli adpresse pubescenti; folia novella sericea, petiolata, petiolo 2.5–7 mm. longo; lamina subchartacea, anguste oblongo-lanceolata vel elliptico-oblonga, apice acuminata, basi acuta; inflorescentia racemosa, strigillosa, 5–25 mm. longa; bracteolae acutae, usque ad 1.5 mm. longae, strigillosae, basi connatae; calycis lobi utrinque adpresse pubescentes, majores 2.2 mm. longi; fructus subglobosus, ca. 1 cm. diam.; discus ca. 2 mm. diam.

A shrub, about 3 m. tall; branchlets slender with elongated internodes, subcompressed, at first pubescent with short appressed hairs; leaves at first sericeous on both surfaces, with the petioles appressed pubescent, the petioles canaliculate, 2.5–7 mm. long; leaf blades thin, subchartaceous, oblong-lanceolate or narrowly elliptic-oblong, 7–12 cm. long, 2–3.8 cm. wide, apex acuminate, base narrowed, acute, revolute, the midvein impressed above, the furrow narrow and sharp, elevated beneath, the primary and secondary lateral veins very slender, obscure above at maturity, the glands minute, slightly elevated on upper surface; inflorescence a short axillary raceme, or the flowers sometimes at the lower nodes of a leafy branchlet, the raceme-axis 5–25 mm. long, bearing opposite decussate pairs of flowers, with terminal flower present, the entire inflorescence densely pubescent with short appressed whitish hairs; pedicels 6–15 mm. long, those of fruits longest; bracts lanceolate, up to 1.5 mm. long, deciduous with age; bracteoles acute, deltoid-ovate, up to 1.5 mm. long, strigillose, coherent by basal margins, with pellucid glands; fruits at first pubescent with subappressed hairs, depressed-globose at maturity, the 1-seeded up to 1 cm. in diam.; calyx crowning the fruits of strongly unequal lobes, the lobes appressed pubescent on both surfaces, the larger pair in fruit ovate-elliptic, up to 2.2 mm. long, the smaller pair ovate, up to 1.3 mm. long, rounded at apex; the disk crowning fruits about 2 mm. in diam., pubescent.

Mexico: Chiapas, Municipio of Tenejapa, slope with *Heliocarpus* and *Erythrina* in the barrio of Ti Ha', paraje of Mahbenchaok, elev. 3400 feet, May 5, 1967, *Alush Shilom Ton 2280* (LL, type), shrub 10 feet tall.

I was inclined at first to refer this collection to *E. yucatanensis* Standl. of the lowlands of the Yucatan Peninsula, but the taxon represents a closely related but western mountain population which merits recognition. The ratio of leaf width to length, the longer fruiting pedicels and smaller calyx crowning the fruits are distinguishing features. The large, long narrow leaves are not found in any specimens of the extensive series of *E. yucatanensis* now available from Peten and Belice.

## MYRSINACEAE

**Ardisia jamaicensis** Lundell, sp. nov. — Frutex; ramuli novelli lepidoti; folia subsessilia; lamina subcoriacea, glabra, oblanceolata vel oblanceolato-elliptica, usque ad 18 cm. longa, 5.5 cm. lata, apice subabrupte acuminata, basi acuta; inflorescentia tripinnatim paniculata; flores 5-meri, subcorymbosi; pedicelli 3–4.5 mm. longi; sepala ovata, punctata; petala ca. 5 mm. longa, basi connata ca. 1.2 mm.; stamina ca. 4.5 mm. longa; antherae acutae; ovula pluriseriata.

Shrub, 2.5–3 m. tall, with rather stout nearly terete branchlets lepidote apically; leaves subsessile or with short thick marginate petioles up to 5 mm. long, the petioles closely appressed lepidote at first; leaf blades entire, subcoriaceous, black punctate, at first sparingly lepidote beneath along the costa, glabrous otherwise at maturity, oblanceolate or oblanceolate-elliptic, (7) 10–18 cm. long, (2.2) 3 3.5 cm. wide, apex subabruptly short acuminate, base attenuate and decurrent on the petiole, acute or subcuneate, nearly smooth above with the midvein slightly impressed, paler beneath, the costa prominent, the veins conspicuous and reticulate; inflorescences terminal and axillary, 3-pinnately paniculate, subpyramidal, up to 12 cm. long, sparingly appressed lepidote, densely so at base; flowers glabrous, usually 5-parted, subcorymbose; pedicels 3–4.5 mm. long; sepals ovate, 1.3–1.5 mm. long, rounded at apex, minutely erose, with scattered orange-red glands, some smaller and darker; petals whitish, oblong-elliptic, 5 mm. long, united at base into tube about 1.2 mm. long, punctate with conspicuous linear orange glands; filaments borne about 0.5 mm. above base of corolla, slender, about 1.6 mm. long; anthers yellow, linear-lanceolate, about 3.2 mm. long, acutely apiculate, dehiscent at first by apical pores, eglandular; ovary ovoid; style 4.5 mm. long; ovules pluriseriate, small.

Jamaica: Hanover Parish, east slope of Dolphin Head, thickets on moist clay soil, alt. 1000-1250 ft., April 11, 1955, *George R. Proctor 10013* (IJ, type), shrub 2.5 m. tall, petals whitish with pale brown flecks, filaments white, anthers yellow. St. James Parish, ½ mile southeast of Bickersteth, clay soil, roadside bank beside stream, alt. 450 ft., Feb. 17, 1957, *Proctor 16166* (IJ), shrub 3 m. tall, buds and flowers whitish-rose. Westmoreland Parish, along road between New Works and Content, Bluefields Mountain, thickets on steep roadside bank, alt. ca. 2250 ft., Feb. 8, 1961. *George R. Proctor & Winston Mullings 22060* (IJ), shrub 2.5 m. tall, buds cream-white.

The Jamaican population has been referred to *A. compressa* H.B.K., as broadly defined by Mez. The subsessile oblanceolate entire leaves conspicuously veined beneath, short pedicels with flowers appearing umbellate at anthesis, broad sepals, acute anthers twice as long as the slender filaments, and the conspicuously orange-lineate petals appear to be features

in combination by which the insular species differs from related mainland taxa.

**Rapanea punctata** (Lam.) Lundell, comb, nov. *Sideroxylum punctatum* Lam., Tabl. Encyc. & Meth., Bot. 2: 42. 1794. *Bumelia punctata* (Lam.) Roem. & Schult. in L., Syst. Ved., ed. nov. 4: 498. 1819. *Myrsine floridana* A.DC., Trans. Linn. Soc. London 17: 107. 1834; in DC., Prodr. 8: 98. 1844. *Rapanea guyanensis* Small, Man. Se. Fl. 1029, *fig.* 1933, not Aublet. *Myrsine punctata* (Lam.) Stearn, Bull. Br. Museum Nat. Hist. 4: 177. 1969.

We are indebted to Dr. W. T. Stearn (l.c.) for his clarification of the nomenclature of this species. I follow Mez in recognizing *Rapanea* as distinct from *Myrsine*.

## STYRACACEAE

**Styrax vestitus** Lundell, sp. nov. — Arbor parva, ramulis crassiusculis, stellato-tomentosis; folia petiolata, petiolo 5–8 (12) mm. longo; lamina membranacea, late obovata vel elliptica, apice subabrupte acuminata, basi rotundata vel acutiuscula, supra parce stellato-pilosa, subtus dense stellato-pilosa; inflorescentia stellato-tomentosa, 6–15 cm. longa; pedicelli 5–12 mm. longi; calyx 4–6 mm. longus, subulato-dentatus, tomentosus; corolla stellato-tomentosa, usque ad 1.7 cm. longa, lobis imbricatis; ovarium stellato-pilosum; stylus usque ad 1.7 cm. longus, glaber.

Small tree, the branchlets stellate-tomentose with soft whitish hairs; leaves petiolate, the petioles tomentose, 5–8 (12) mm. long; leaf blades membranaceous, whitish beneath, obovate or broadly elliptic, 7.5–16.5 cm. long, 4–10 cm. wide, apex subabruptly short but sharply acuminate, base rounded, often acutish, margin entire or subentire, sparsely short stellate-pilose above, rather densely stellate-pilose on lower surface, costa and veins slender and plane or faintly impressed above, slender but conspicuous below, the primary lateral veins 4–7 pairs, widely and arcuately ascending, openly reticulate; inflorescence stellate-tomentose, 6–15 cm. long, leafy; pedicels 5–12 mm. long, accrescent; calyx stellate-tomentose, campanulate, 4–6 mm. long, dentate, the teeth up to 1 mm. long, often subulate; corolla white, stellate-tomentose, up to 1.7 cm. long, the lobes imbricate; ovary stellate-pilose, the style slender, up to 1.7 cm. long, glabrous above base.

Mexico: Chiapas, Concordia, alt. 543 m., June 14, 1945, *Eizi Matuda 5922* (LL, type). Also, *Matuda 4179* (LL) and *5995* (LL) are referable here.

The dense white tomentum of soft stellate hairs covering all parts, broadly obovate or elliptic leaves, and subulate-dentate calyx are features of note. The relationship is with *S. glabrescens* Benth.

## SYMPLOCACEAE

**Symplocos Breedlovei** Lundell, sp. nov. — Arbuscula vel arbor, ramulis parce strigillosis; folia parva, petiolata, petiolo 3–5 mm. longo; lamina chartacea, flava, lanceolata vel lanceolato-elliptica, minute serrulato-denticulata, reticulato-venosa, apice acuminata, basi acutiuscula, subtus parce strigosa; inflorescentia pauciflora, racemosa, strigillosa; calyx parvus; lobi ovati, strigillosi; corolla glabra; lobi oblongi, rotundati; stamina 24–28, triseriata, ca. 1 cm. longa; stylus strigosus, ca. 1 cm. longus.

Shrub, or tree up to 10 m. high, the branchlets thinly strigillose at first, slender, with the leaf buds densely white-strigose; leaves small, drying yellowish, petiolate, the petioles slender, 3–5 mm. long, strigillose at first; leaf blades chartaceous, sparsely strigose on lower surface, lanceolate or lanceolate-elliptic, (3) 5–7.5 (12) cm. long, (1.5) 2.3–2.8 (3.5) cm. wide, apex acuminate, base acutish, minutely but conspicuously serrulate-denticulate, openly reticulate-veined on both surfaces, the costa slightly impressed above, elevated beneath; inflorescence axillary, few-flowered, racemose, densely white strigillose; flowers sessile or subsessile; calyx densely strigillose with white hairs, about 3 mm. long, the lobes ciliate, ovate, 1.8–2 mm. long, obtusish; corolla glabrous, about 11 mm. long, the lobes oblong, rounded, erose-ciliolate, reflexed in anthesis, forming tube to above middle; stamens 24–28, triseriate, the filaments connate to near their apices and forming a corona slightly shorter than corolla, adnate to corolla to above middle; style equalling stamens, about 1 cm. long, with scattered stiff ascending hairs below middle; stigma small, lobate; ovary pubescent above, glabrous below.

Mexico: Chiapas, Municipio of Tenejapa, slope with *Quercus* at Pokolum, paraje of Sibanilha, elev. 5200 feet, Aug. 11, 1965, *D. E. Breedlove 11747* (LL, type), tree, 30 feet tall.

Also referable here are *Breedlove 12464* (LL), *12563* (LL), *Breedlove & Raven 12938* (LL), *Ton 478* (LL), *793* (LL), all from the Municipio of Tenejapa at elevations up to 9100 feet.

*Ton 793* is in young fruit, and the fruits are oblong-ellipsoid, 3-celled, sparingly strigillose. The rachis of the infructescence is up to 1 cm. long, persistently strigillose.

All of the collections were distributed as *S. limoncillo* Humb. & Bonpl., to which a relationship is doubtful. *S. Breedlovei* is probably nearer *S. chiapensis* Lundell and *S. Matudae* Lundell. The finely serrulate-denticulate small yellowish leaves, the strigillose indument, glabrous corolla, style hairy to middle, few-flowered compact inflorescences, and 3-celled fruit easily distinguish *S. Breedlovei.*

**Symplocos Hintonii** Lundell, sp. nov. — Arbor parva, ramulis setoso-pilosis; folia pilosa, subsessilia, petiolo usque ad 4 mm. longo; lamina

subchartacea, integra, lanceolata, elliptica vel oblanceolata, apice acuminata, basi rotundata, emarginata, costa supra impressa; inflorescentia pauciflora, dense setoso-pilosa; calyx 8-9.5 mm. longus; lobi subulato-lanceolati; corolla ca. 2.5 cm. longa; lobi lanceolati, usque at 12 mm. longi; stamina 7-seriata, numerosa; ovarium pilosum; stylus ca. 13 mm. longus, pilosus.

Tree, 10 m. high, branchlets slender, densely setose-pilose with hairs up to 1.5 mm. long; leaves pilose, subsessile, the petioles up to 4 mm. long; leaf blades drying black, paler beneath, subchartaceous, lanceolate, elliptic or oblanceolate, 3.5–9 cm. long, 2–3.3 cm. wide, apex sharply acuminate, base rounded and emarginate, setose-pilose on both surfaces at first with appressed or subappressed hairs, costa and veins impressed above, elevated and reticulate beneath, margin entire; inflorescence axillary, few-flowered, densely setose-pilose, the rachis up to 1 cm. long, with approximate lanceolate-acuminate bracts; flowers pink, the calyx 8 9.5 mm. long, pilose with subappressed hairs, the 5 lobes subulate-lanceolate, 4.5–6 mm. long, subequal, glabrous within; corolla tubular, enlarged subapically, up to 2.5 cm. long, glabrous except for appressed hairs dorsally on the 5 lobes; the lobes lanceolate, up to 12 mm. long, sharply acuminate; stamens 7-seriate, adnate to corolla tube, the corona extending about 5 mm. above tube, the free portion of filaments minutely papillate, the anthers minute; ovary pilose apically; style included in corolla tube, about 13 mm. long, subappressed pilose to about middle, the stigma subcapitate, small, lobate.

Mexico: Guerrero, Distr. Galeana, Teotepec, edge of forest stream, alt. 2600 m., May 18, 1939, *Geo. B. Hinton 14276* (LL, type), tree 10 m. high, flowers pink.

*S. Hintonii*, a remarkable species notable for its large flowers with 7-seriate stamens, subsessile leaves with veins impressed above, and setose-pilose indument, may have affinity to *S. coccinea* Humb. & Bonpl. That species has smaller 10-parted flowers and crenulate leaves.

**Symplocos longipes** Lundell, sp. nov. — Arbor parva, glabra, ramulis crassiusculis; folia flava, glabra, petiolata, petiolo canaliculato, 4–7 mm. longo; lamina chartacea, oblanceolata vel elliptica, apice acuminata, basi acuta vel subacuminata, serrata; inflorescentia filiformia, usque ad 5 cm. longa, glabra, pauciflora, racemosa; pedicelli fructiferi usque ad 2 cm. longi; sepala glabra, ciliata; fructus glaber.

Tree, about 10 m. high, leaf buds and branches glabrous; leaves glabrous, drying yellowish, petiolate, the petioles canaliculate, 4–7 mm. long; leaf blades chartaceous, glabrous, oblanceolate or elliptic, 6–14 cm. long, 2.6–4.5 cm. wide, apex acuminate, base acute or subacuminate, margin sharply serrate, the teeth incurved, costa impressed above, elevated beneath, the veins openly reticulate and conspicuous on both sur-

faces; inflorescence axillary, below the leaves on older wood, racemose, few-flowered, very slender, glabrous, the rachis up to 3 cm. long; pedicels of fruits long, filiform, up to 2 cm. long; immature fruits oblong, slightly curved, glabrous, up to 1.3 cm. long; calyx lobes crowning fruits glabrous, ciliate, about 1.2 mm. long.

Mexico: Chiapas, Municipio of Tenejapa, slope with *Quercus, Pinus* and *Liquidambar,* paraje of Shohleh, elev. 7800 feet, Oct. 2, 1965, *D. E. Breedlove 12716* (LL, type), tree 30 feet tall.

*S. longipes* is an outstanding species, represented by imperfect material, but very distinctive in its large yellowish leaves distinctly serrate, glabrous leaf buds, and slender few-flowered inflorescences with fruiting pedicels up to 2 cm. long.

**Symplocos vernicosa** L. Wms., Fieldiana Bot. 31: 267. 1967.

In the original description, *Eizi Matuda 15483* from Chiapas was cited as probably belonging here. In the Lundell Herbarium, *Matuda 5483* from Pinabeto, near Motozintla, alt. 2586 m., May 9, 1945, represents the same collection. The corolla of some flowers is sparsely strigillose dorsally, and the collection appears to be referable to *S. Matudae* Lundell of which I have examined an isotype, *Matuda 472* (LL). Also, *John M. Tucker 999* (LL) from El Salvador, cited in the original description of *S. vernicosa,* has a sparsely strigillose corolla, not glabrous as described. Hence, *S. vernicosa* appears to be only a less pubescent form of *S. Matudae.*

## RUBIACEAE

**Guettarda petenensis** Lundell, sp. nov. — Arbor, usque ad 20. alta, 60 cm. diam., ramulis crassiusculis, dense pubescentibus, substrigosis; stipulae lanceolatae, usque ad 8 mm. longae, apice subulatae; folia opposita, petiolata, petiolo 5–10 (15) mm. longo, substrigoso; lamina chartacea vel subcoriacea, ovata vel lanceolata, 3–7.5 cm. longa, 1.5–4.3 cm. lata, basi rotundata, apice acuta vel acuminata, supra subglabra, subtus substrigosa; inflorescentia cymosa, axillaris, usque ad 3.5 cm. longa, minute tomentosa; drupa sessilia, obovoidea vel oblongo-elliptica, usque ad 2 cm. longa, 0.8–1.4 cm. diam.

Tree, over 20 m. high, 60 cm. in diam.; branchlets rather slender to stout, with short internodes, densely pubescent with subappressed to appressed hairs, substrigose; stipules lanceolate, up to 8 mm. long, tapering to the subulate apex; leaves opposite, rather crowded at apex of twigs, petiolate, the petioles 5–10 (15) mm. long, substrigose; leaf blades chartaceous or subcoriaceous, ovate or lanceolate, 3–7.5 cm. long, 1.5–4.3 cm. wide, rounded at base, apex acute or acuminate, the pubescence appressed, strigillose, sparse above, more conspicuous beneath and persistent, the axils of the primary veins with small domatia, the primary lateral veins

5 or 6 pairs, rather conspicuous beneath, less prominent above, arcuately ascending, the costa elevated on lower surface, slender above; inflorescence axillary, cymose, up to 3.5 cm. long in fruit, tomentose with somewhat tawny short hairs, the peduncles rather stout, 5–20 mm. long; fruits sessile, obovoid to oblong-elliptic, up to 2 cm. long, 1.4 cm. in diam., rather tawny at first, carmine-red at maturity, the tomentum minute.

Guatemala: Dept. Peten, La Cumbre, in high forest about 6 km. from village, on top of hill bordering Rio Pusila, May 18, 1967, *Elias Contreras 6947* (LL, type), tree, 70 ft. high, 25 in. diam., fruit carmine-red.

This giant tree, unusual for the genus, must be related to *G. macrosperma* Donn. Sm., but flowers are needed to determine its true affinities. The fruits approaching maturity are strikingly similar to those of *G. tikalana* Lundell. The small chartaceous or subcoriaceous ovate or lanceolate leaves aggregated at the apex of the twigs are features of note.

**Randia Gentlei** Lundell, sp. nov. — Arbor parva; ramuli crassi, hirsuti; stipulae late ovatae, acuminatae, usque ad 1 cm. longae, extus hirsutae, intus glabrae; folia dense aggregata, petiolata, petiolo crasso, usque ad 1.3 cm. longo; lamina magna, membranacea, obovato-elliptica vel oblanceolata, 20–45 cm. longa, 5.5–13.5 (20) cm. lata, apice acuminata, basi acuta, supra parce hirsuta, subtus piloso-hirsuta; flores aggregati, strigoso-hirsuti; calyx 5–6-lobus, lobis filiformis, 1–2.5 cm. longis; corolla strigoso-hirsuta, usque ad 8.5 cm. longa, lobis 5, lanceolatis, usque ad 4 cm. longis, acuminatis; bacca globosa vel ellipsoidea, usque ad 8 cm. longa, 6.5 cm. diam.; semina numerosissima.

A small unarmed tree or arborescent shrub, the branchlets thick, hirsute at first, without spines; stipules broadly ovate, tapering to the acuminate apex, up to 1 cm. long, glabrous inside, hirsute without; leaves large, clustered at the ends of the branchlets, petiolate, the petioles short, stout, short hirsute, up to 1.3 cm. long, marginate; leaf blades membranaceous, drying blackish, obovate-elliptic or oblanceolate, 20–45 cm. long, 5.5–13.5 (20) cm. wide, apex acuminate, base narrowed, acute, and decurrent on the thick petiole, rather sparsely hirsute on upper surface except along the veins on which hairs are denser, short pilose beneath, the hairs denser and coarser along the veins, costa slightly impressed above, elevated and conspicuous beneath, the primary lateral veins 10–12 pairs, widely and arcuately ascending, slender but very evident; flowers clustered at ends of branchlets, subsessile; hypanthium and calyx strigose, the calyx lobes 5 or 6, filiform, 1–2.5 cm. long, variable in length depending on flower size, persistently strigose-hirsute, the hairs subappressed; corolla 4.5–8.5 cm. long, strigose-hirsute, the tube up to 4.5 cm. long, 4 mm. in diam., the lobes 5, lanceolate, up to 4 cm. long, acuminate, glabrous within, the throat glabrous; stamens 5, inserted medially in tube, the anthers linear, about 1.2 cm. long; style short, about 1.5 cm.

long, with scattered hairs; stigma claviform, about 6.5 mm. long; fruits large, with thick hard pericarp, globose or ellipsoid, immature ones up to 8 cm. long, 6.5 cm. in diam., many-seeded.

British Honduras: Toledo District, in high ridge, on hilltop beyond Carmelita Camp, Edwards Road beyond Columbia, May 24, 1951, *Percy H. Gentle 7343* (LL, type), tree, 3 in. diam., flowers whitish.

Guatemala: Dept. Peten, Chinchila, in *corozal* about 8 km. from San Luis on Sebol Road, Oct. 10, 1966, *Elias Contreras 6366* (LL), tree, 30 ft. high, 4 in. diam., fruit green.

Also represented by these collections from the rain forest at the base of the Yucatan Peninsula: *Gentle 4832* (LL), *5353* (LL), *7017* (LL), *7106* (LL), *7938* (LL), all from Stann Creek and Toledo districts; *Contreras 6277* (LL), *6861* (LL), from the Dept. Peten, and *7885* (LL) from the Dept. Alta Verapaz. The latter collection is in fruit, and atypical.

This outstanding unarmed species with filiform feathery calyx lobes up to 2.5 cm. long, very large thin leaves, and large fruits, appears to have affinity to *R. monantha* Benth. and *R. habrophlebia* Standl. & Steyerm. of Guatemala. It is known in British Honduras as *"wild calabash."*

**Randia longiloba** Hemsl., Biol. Centr. Am. Bot. 4: 101. 1887.

Guatemala: Dept. Peten, Tikal National Park, about 4 km. north of Aguada Terminos, Bajo de Santa Fe, in *tintal,* Aug. 31, 1960, *Elias Contreras 1474* (LL), clambering shrub, fruit greenish-white; Dos Lagunas, in *bajo* bordering airport, April 25, 1969, *Contreras 8403* (LL), clambering shrub.

Like so many species described from the dry forest of the northern tip of the Yucatan Peninsula, *R. longiloba* is at home in the swamp forests (*bajos*) of northern Peten.

**Randia letreroana** Lundell, sp. nov. — Arbor parva, armata, ramis crassis nodosis, foliis ad nodos dense congestis numerosis; folia parva, pilosa, subsessilia vel petiolata, petiolo usque ad 7 mm. longo; lamina chartacea, obovata vel obovato-elliptica, 1–4.5 cm. longa, 0.8–2.4 cm. lata, apice rotundata, basi late cuneata; flores albi; calyx 5–6-lobus, lobis linearisubulatis, 2.5–3 mm. longis, ciliatis; corolla usque ad 3 cm. longa, lobis 4 vel 5, lanceolato-ellipticis, usque ad 1 cm. longis; ovarium glabrum.

Small tree, 3 m. high, the branches stout, glabrescent, the leaves crowded on very short lateral spurs, the branches bearing pairs of stout spines 1–2.5 cm. long; stipules about 3 mm. long, apiculate, appressed pubescent; leaves drying blackish, the smaller subsessile, the larger with petioles up to 7 mm. long, the petioles pilose; leaf blades obovate or obovate-elliptic, 1–4.5 cm. long, 0.8 2.4 cm. wide, apex rounded, sometimes subacute, base broadly cuneate and decurrent on petiole, chartaceous, short pilose on both surfaces, the hairs beneath longer and denser, primary lateral veins 4 or 5 pairs, slender, strongly ascending; flowers

terminal, solitary, subsessile; hypanthium glabrous, about 1 mm. long, equaling pedicel, the calyx lobes 5 or 6, linear-subulate, 2.5–3 mm long, ciliate with ascending hairs; corolla tube glabrous below, with an hirtellous area at base of each corolla lobe, the tube narrow, expanded slightly above, 1.2–2 cm. long, the lobes 4 or 5, lanceolate-elliptic, up to 1 cm. long; throat of tube glabrous; anthers 5, dorsally attached in throat, apically exserted; style glabrous, equaling corolla tube, the stigma clavate.

Mexico: Chiapas, Letrero, near Siltepec, alt. 2000 m., July 6, 1941, *Eizi Matuda 4358* (LL, type), small tree, 3 m. high, flowers white.

*R. letreroana* has affinity to *R. canescens* Greenm. and *R. blepharodes* Standl. of Morelos and Guerrero, respectively.

**Randia Lundelliana** Standl., in Lundell, Contr. Univ. Mich. Heb. 4: 31. 1940.

British Honduras: El Cayo District, Vaca, on hillside, April 26, 1938, *Percy H. Gentle 2524* (LL, isotype), tree, 3 in. diam., corolla white.

Guatemala: Dept. Peten, between Santo Toribio and San Juan, km. 55 of Flores Road, east side in savanna, Aug. 26, 1961, *Elias Contreras 2789* (LL), clambering shrub, 20 ft. high, 4 in. diam., "*chanac*"; Tikal National Park, Tikal, in secondary growth bordering airfield, Jan. 20, 1962, *C. L. Lundell 17220* (LL), clambering, thorny shrub, 12 ft. high.

In *R. Lundelliana* the fruits are pubescent, globose, up to 3 cm. in diameter, thickly stipitate, and crowned by the persistent style. Its leaves, with slender petioles 5 to 18 mm. long, measure up to 12 cm. long, 6 cm. wide, and they are persistently pubescent.

**Randia petenensis** Lundell, sp. nov. – Arbor parva, glabra, armata; stipulae late ovatae, usque ad 5 mm. longae, apice subulatae; folia opposita, glabra, membranacea, longipetiolata, petiolo 5–12 mm. longo; lamina late ovata vel ovato-elliptica, 8–14.5 cm. longa, 3.5–8.5 cm. lata, utrinque acuminata; fructus parvus, globosus, glaber.

A tree, about 12 m. high, 15 cm. in diam., glabrous; branchlets rather slender, with or without spines, spines when present in pairs along the branches, the spines stout, up to 6 mm. long; stipules broadly ovate, up to 5 mm. long, subulate, the awl-shaped apex up to 2 mm. long; leaves glabrous, relatively large, opposite, petiolate, the petioles slender, 5–12 mm. long, shallowly canaliculate; leaf blades membranaceous, the young ones drying blackish, ovate or ovate-elliptic, 8–14.5 cm. long, 3.5–8.5 cm. wide, apex and base acuminate, the base subabruptly narrowed and decurrent, the midvein subimpressed above, elevated and slender beneath, the primary veins 5 or 6 pairs, slender, arcuately ascending, nearly plane above; fruits (immature) clustered on older wood, sessile, glabrous, globose, up to 1 cm. in diam. (immature), the pericarp smooth, rather thick; the persistent hypanthium crowning the fruits about 1 mm. high,

1.8 mm. in diam.; calyx lobes 5, persistent, reflexed, subulate, about 1.5 mm. long, with scattered stiff appressed hairs persistent.

Guatemala: Dept. Peten, La Cumbre, in high forest, about 5 km. from the village, on Pusila River Road, May 17, 1967, *Elias Contreras 6941* (LL, type), tree, about 35 ft. high, 6 in. diam., fruit green.

In the absence of flowers, the relationship of *R. petenensis* is doubtful. The combination of large thin glabrous leaves, small sessile fruits clustered on old wood, short spines in pairs along some branches, and subulate strigillose calyx lobes are features distinguishing the species.

VOLUME 4 AUGUST, 1970 NUMBER 4

# WRIGHTIA

A BOTANICAL JOURNAL

CONTENTS

Studies of American Plants — II.
By Cyrus Longworth Lundell . . . . . 129

PUBLISHED BY
TEXAS RESEARCH FOUNDATION
RENNER, TEXAS

MISSOURI BOTANICAL
AUG 18 1970

# WRIGHTIA

WRIGHTIA, a botanical journal, is a publication of Texas Research Foundation. The contributions are by staff members and collaborators. Each volume will contain a series of numbers. The numbers will be issued at irregular intervals over a period of several years.

VOLUME 4, NUMBER 4
ISSUED AUGUST 10, 1970

Printed in the U.S.A.
Etheridge Printing Company
Dallas, Texas

WRIGHTIA

VOLUME 4 AUGUST, 1970 NUMBER 4

# STUDIES OF AMERICAN PLANTS – II

CYRUS LONGWORTH LUNDELL

The Crown Colony of British Honduras, better known in Latin America as Belice, has a distinctive flora richer than that of El Peten, and still less known. The coastal savannas and pinelands, the Maya Mountains, wet foothills, and the rain forest of the southern half of the Colony provide a diversity of habitats unlike those of most of the Yucatan Peninsula.

Plant exploration has been sporadic, but accumulated collections are quite impressive. Of particular significance are the extensive collections of Morton E. Peck, William A. Schipp, C. L. Lundell, H. H. Bartlett and Percy H. Gentle. Many collectors, in particular those who have been associated with the Forestry Department of the Colony, have secured very interesting special collections, particularly of the important trees.

In 1928 my first plant collection was made at Honey Camp in the Orange Walk District in the northern lowlands. During a stop-over in Washington, D.C., on my first assignment as Assistant Physiologist of the Tropical Plant Research Foundation, I visited the U. S. National Herbarium where William R. Maxon provided a plant press, and persuaded me to undertake plant collecting in British Honduras where I was to carry out tapping experiments and other field work for the chicle industry. My collecting at Honey Camp was continued in 1929. Subsequently, other collections were made in the Belize and El Cayo districts in 1933 and 1936.

Percy H. Gentle, who was initiated into field work in 1931 by H. H. Bartlett, began work as my field collector in 1933, and continued in that capacity until his death in 1958. During the 27 years, Gentle's own series from the Colony totaled 9756 numbers. His is the broadest representation of the flora. His complete series before 1943 is in the University of Michigan Herbarium, from 1943 to 1958 in the Lundell Herbarium.

It is probable that the combined major collections of Peck, Lundell, Bartlett, Schipp and Gentle, and the lessor series of various other collectors, total some 20,000 numbers. Yet the Colony is only partially explored, and much productive field work can still be undertaken, particularly in the Maya Mountains and in the rain forest of the southern areas.

Paul C. Standley and Samuel J. Record in *The Forests and Flora of British Honduras* (Field Mus. Publ. Bot. 12. 1936) give a bibliography

of early publications on the flora. Their work was the first to encompass the entire Colony. Two companion volumes which I edited, *Botany of the Maya Area: Miscellaneous Papers* (Carnegie Inst. Publ. Nos. 461, published in 1936, and 522, published in 1940) provide, along with papers in *Wrightia*, a more comprehensive treatment of particular areas and plant groups. Based on geographical considerations, Paul C. Standley, et al. have included British Honduras in the *Flora of Guatemala* (Fieldiana Bot., vols. 24, 25, 26).

As exploration proceeds and accumulated unnamed collections of Gentle, Elias Contreras, George R. Proctor, and others are studied, there will be many additions to the flora, but it is doubtful that 5000 species will be found in the Colony, as predicted by F. A. Sprague.

*Studies of American Plants — II* includes taxonomic notes and descriptions of plants mainly from Middle America. Most of the novelties are described from collections of Elias Contreras in the rain forest of southeastern Peten. The forest there is contiguous to that of the Toledo District of British Honduras and the Department of Izabal, and various species described from the collections of Peck, Schipp, Gentle and Julian C. Steyermark are represented in the recent collections of Contreras in El Peten and Izabal.

## NYCTAGINACEAE

**Guapira longicuspis** Lundell, sp. nov. — Arbor, ca. 13 m. alta, 30 cm. diam.; ramuli graciles, novelli rufo-puberuli; folia opposita vel verticillata, longe petiolata, petiolo 7–20 mm. longo; lamina glabra, membranacea, anguste lanceolata vel oblongo-lanceolata, 4.5–9 (12) cm. longa, 1.3–3.6 cm. lata, apice caudato-acuminata, basi acuta; inflorescentia rufo-puberula, parva, cymoso-paniculata, 3.5–6.5 cm. longa, longe pedunculata, pedunculo usque ad 3.5 cm. longo; pedicelli fructiferi subnulli; bracteolae minutae, ca. 0.3 mm. longae; fructus ellipsoideus, 6–7 mm. longus, costatus.

A tree, about 13 m. high, 30 cm. in diam., branchlets slender, minutely puberulent with subappressed red hairs; leaves opposite or verticillate, with long slender canaliculate petioles 7–20 mm. long, reddish puberulent at first; leaf blades glabrous, membranaceous, very thin, drying blackish, narrowly lanceolate or oblong-lanceolate, 4.5–9 (12) cm. long, 1.3–3.6 cm. wide, apex caudate-acuminate, the cusp often falcate, base acute, the midvein slightly elevated above, more prominent beneath, the primary lateral veins very slender, inconspicuous, 7–9 pairs; inflorescence pubescent with minute red subappressed hairs, cymose-paniculate, the panicles with mature fruits only 3.5–6.5 cm. long, with long rather slender pe-

duncles up to 3.5 cm. long, the branches rather short; bracts subtending fruits minute, triangular, about 0.3 mm. long; fruits small, ellipsoid, 6–7 mm. long, costate.

Guatemala: Dept. Peten, La Cumbre, on hill in high forest, 3 km. west of km. 137 of Cadenas Road, July 29, 1969, *Elias Contreras 8772* (LL, type), tree, 40 ft. high, 12 in. diam., fruit red-pink.

Although only fruiting specimens are available, I am placing the species in *Guapira* rather than *Neea*, for its relationship appears to be with *G. itzana* Lundell, which occurs in the same rain forest. *G. longicuspis* has cuspidate very slender thin leaves with elongated petioles, small infructescences with ripe fruits only half the size of those of *G. itzana* and minute bracts subtending the fruits.

**Neea flavifolia** Lundell, sp. nov. — Frutex; ramuli graciles, glabri; folia flavida, petiolata, petiolo 3–7 mm. longo; lamina glabra, coriacea, lanceolata vel ovato-elliptica, 6–11 cm. longa, 2.5–5 cm. lata, apice obtusa vel acuminata, acumine obtuso, basi rotundata; inflorescentia capillacea, cymoso-paniculata, pauciflora, usque ad 10 cm. longa, longe pedunculata, pedunculo usque ad 7 cm. longo, pedicellis usque ad 1 cm. longis; hypanthium tubuloso-campanulatum, ca. 3.5 mm. longum, 5-dentatum, basi parce adpresse puberulum; stamina 6, biseriata; ovarium glabrum; stigma penicillata; anthocarpium glabrum.

A shrub, 2–3 m. high, about 2.5 cm. in diam., essentially glabrous, the branchlets rather slender, mostly short, drying yellowish; leaves opposite or verticillate, glabrous, with short rather stout canaliculate petioles 3–7 mm. long; leaf blades yellowish, coriaceous, shining, lanceolate or ovate-elliptic, 6–11 cm. long, 2.5–5 cm. wide, apex obtuse or acuminate, the acumen obtuse, base rounded, primary lateral veins very slender, 7–10 pairs, discernible on both surfaces, openly reticulate, the midvein convex above, prominent beneath; inflorescence capillaceous, cymose-paniculate, few-flowered, 5–10 cm. long, glabrous, the peduncle up to 7 cm. long; pedicels thread-like, up to 1 cm. long; hypanthium with mostly three linear bracts at base, the bracts about 0.7 mm. long, the hypanthium with few minute reddish appressed hairs at base, otherwise glabrous, tubular-campanulate, about 3.5 mm. long, 5-dentate, the teeth induplicate-valvate; stamens 6, in 2 series, borne at base of ovary, filaments united at base; ovary superior, glabrous, with style nearly twice as long; stigma penicillate; immature anthocarp ellipsoid, glabrous, fleshy, crowned by the perianth teeth.

Guatemala: Dept. Peten, La Cumbre, on top of hill, west of km. 140 of Cadenas Road, in clearing, Aug. 2, 1969, *Elias Contreras 8823* (LL, type), shrub, 7 ft. high, 1 in. diam., flowers yellowish-green; La Cumbre, east of km. 142 of Cadenas Road, on top of hill on Las Canas Road, in

low forest, July 31, 1969, *Contreras 8815* (LL), shrub, 10 ft. high, 1 in. diam., fruit green.

A distinctive species in a genus where species are difficult to separate. All parts are yellow-green in *N. flavifolia* and the coriaceous leaves are shiny with venation openly reticulate. The capillaceous few-flowered inflorescence and flowers with tubular-campanulate perianth are unique.

## LAURACEAE

**Nectandra nigrita** Lundell, sp. nov. — Arbor, 30 m. alta, ramulis sericeis, angulatis; folia alternata, petiolata, petiolo usque ad 1.2 cm. longo; lamina chartacea, anguste oblanceolata, 5.5–13 cm. longa, 1.4–2.5 cm. lata, basi attenuata, apice acuminata, acumine obtuso, supra glabra, subtus novella sericea; inflorescentia late paniculata, usque ad 10 cm. longa, minute albido-tomentella; flores albido-tomentelli, ca. 3 mm. longi, pedicellis usque ad 2 mm. longis, perianthio campanulato, lobis ellipticis, ca. 2 mm. longis; stamina parva, ser. I, II ca. 1 mm. longa; antherae emarginatae; staminodia 3; ovarium glabrum.

A large tree, 30 m. or more tall, up to 45 cm. in diam., the branchlets slender, angled, drying black, densely sericeous at first; leaves alternate, blackish, decurrent on the petiole, the slender marginate petioles up to 1.2 cm. long; leaf blades chartaceous, narrowly oblanceolate, 5.5–13 cm. long, 1.4–2.5 cm. wide, attenuate to the decurrent base, the apex acuminate, the acumen often obtusish, the mature leaves glabrous and shining above, sericeous at first beneath, usually with domatia in axils of lower nerves, the primary lateral veins 8–10 pairs, slender but conspicuous beneath, less evident above, the costa nearly plane above, prominent beneath; inflorescence many-flowered, broadly paniculate, up to 10 cm. long, whitish pubescent with fine minute hairs, the peduncle up to 3.5 cm. long; flowers and pedicels whitish-tomentellous, the pedicels short, up to 2 mm. long; flowers small, scarcely 3 mm. long, 5 mm. in diam.; perianth lobes reflexed at anthesis, elliptic, densely papillate within, about 2 mm. long; stamens of series I and II ovate-orbicular, inconspicuously emarginate, about 1 mm. long, the pubescent filaments shorter than the anthers; the stamens of series III with pair of basal glands; staminodia stipitiform; ovary glabrous; style slender, shorter than ovary; stigma small.

Guatemala: Dept. Peten, Los Arcos, km. 149 of Cadenas Road, west, in high forest, Dec. 22, 1969, *Elias Contreras 9465* (LL, type), tree, 60 ft. high, 15 in. diam., flowers yellowish, "*laurel*"; also from Los Arcos, *Contreras 9424* (LL), tree, 70 ft. high, 18 in. diam., flowers yellowish.

*N. nigrita* may have affinity to *N. Whitei* (Woodson) Allen of Panama and Costa Rica, a species known to me only from description. The Peten tree is notable for its narrow stiff oblanceolate leaves which dry black.

**Ocotea Clarkei** Lundell, sp. nov. — Arbor, ramulis subsericeo-pubescentibus; folia petiolata, petiolo 7–10 mm. longo; lamina membranacea, supra glabra, subtus strigillosa et barbata, elliptico-lanceolata vel oblongo-elliptica, 8.5–19 cm. longa, 4–7 cm. lata, basi rotundata et acutiuscula, apice acuminata, acumine obtuso, reticulato-venosa; inflorescentia anguste paniculata, 6–14 cm. longa, subsericea; flores ca. 3 mm. longi, lobis ovato-ellipticis, usque ad 2 mm. longis; stamina 9; staminodia nulla; ovarium glabrum.

Tree, the branchlets rather slender, short subsericeous at first, drying blackish, inconspicuously angled; leaves with strigillose shallowly canaliculate petioles 7–10 mm. long; leaf blades membranaceous, drying uniformly greenish on both surfaces, elliptic-lanceolate or oblong-elliptic, 8.5–19 cm. long, 4–7 cm. wide, base rounded and acutish, apex obtusely acuminate, sometimes caudate-acuminate, glabrous above, rather sparsely strigillose beneath and barbate in axils of primary veins, costa slightly elevated on upper surface, prominent beneath, the primary lateral nerves 8 or 9 pairs, slender but conspicuous on both surfaces, rather finely reticulate-veined on both surfaces; inflorescence slender, flexuous, subsericeous with short appressed hairs, the panicles narrow, 6–14 cm. long, with peduncles up to 6 cm. long, few-flowered, the pedicels subumbellate, 1.5–3 mm. long, subsericeous; flowers small, subsericeous, about 3 mm. long including perianth tube, the segments equal, suberect, ovate-elliptic, scarcely 2 mm. long, acutish; stamens of series I and II about 1.3 mm. long, the anthers ovate, the filaments equaling the anthers, strigillose, series III with pair of large substipitate glands at base; staminodia none; ovary glabrous; style slightly shorter than ovary.

Mexico: Chiapas, Municipio of Ixhuatan, steep wooded canyon N and S of Ixhuatan, Aug. 4, 1967, *Oscar Clarke 38* (DS, type; LL, fragment of type).

The relationship of *O. Clarkei* appears to be with *O. lactevirens* Standl. & Steyerm., a species known to me only from description. *O. lactevirens* has glabrous leaves, not barbate beneath, and larger flowers.

## MELIACEAE

**Trichilia petenensis** Lundell, sp. now. — Arbor parva, ca. 6.5 m. alta, 10 cm. diam., ramulis dense pilosis; folia pilosa, subsessilia vel breviter petiolata; foliola (3) 5–9, alternata, membranacea, elliptico-lanceolata, superiora ca. 11.5 cm. longa, 4 cm. lata, apice acuminata, basi inaequalia, acutiuscula vel rotundata; inflorescentia paniculata, usque ad 10 cm. longa, pilosa; calyx setoso-pilosus, 5-dentatus; corolla parce strigosa, 1.7–2 mm. longa; petala 5, valvata, acutiuscula; antherae tubo multo breviores; ovarium strigosum.

Small tree, about 6.5 m. high, 10 cm. in diam., branchlets slender, densely pilose; leaves rarely simple, usually with (3) 5–9 alternate leaflets, the leaflets at base often much reduced, somtimes less than 5 mm. long, the petioles densely pilose, sometimes less than 5 mm. long, the leaf rachis densely pilose, up to 10 cm. long; leaflets membranaceous, lanceolate or elliptic-lanceolate, widest at or about the middle, the apical up to 11.5 cm. long, 4 cm. wide, the lower smaller, apex tapering, acuminate, the acumen often obtusish, base inaequilateral, acutish to rounded, persistently pilose along midvein above, pilose over entire surface beneath, primary lateral veins very slender, 10–12 pairs, the lower leaflets subsessile or with petiolules up to 3 mm. long, densely pilose, the petiolule of terminal leaflet longer; panicles very slender, almost filiform, pilose, up to 10 cm. long, with peduncle up to 4 cm. long, few-branched, the panicles often small and less than 2 cm. long; calyx bristly pilose with spreading hairs, small, 1 mm. high within, 5-dentate, glabrous inside; petals 5, yellow-white, strigose or appressed pubescent, 1.7–2 mm. long, valvate and united to the middle, acutish, not spreading; stamen tube glabrous, about 1.2 mm. high; anthers usually 5, about 0.4 mm. long, subsessile, alternating with filiform tipped teeth; ovary pubescent with appressed hairs, equaling the glabrous style; young fruits densely strigose.

Guatemala: Dept. Peten, Cadenas, bordering Rio Sarstun, in high wet forest, west of km. 170 of Poptun Road, Aug. 14, 1966, *Elias Contreras 5975* (LL, type), small tree, about 20 ft. high, 4 in. diam., flowers yellow-white, *"cedrillo."*

*T. oligantha* C. DC., apparently known only from the type, *Karwinsky 1079*, collected somewhere in Mexico, appears to be very closely related. From the original description of that species, I assume that *T. petenensis* is a distinct taxon, differing in having a bristly-pilose 5-dentate calyx, pubescent corolla with 5 petals united to middle, a distinct style, and mostly subsessile leaves with very small reduced leaflets at base.

## EUPHORBIACEAE

**Hieronyma ovatifolia** Lundell, sp. nov. — Arbor, ramulis angulatis, lepidotis; folia petiolata, petiolo 3–7.5 cm. longo; lamina chartacea, ovata vel ovato-elliptica, 8–12 (15) cm. longa, 4–7.5 cm. lata, apice late acuminata, acumine obtuso, basi rotundata et acutiuscula, supra parce lepidota et reticulata, subtus lepidota, costa pilosa; inflorescentia paniculata, dense lepidota, usque ad 5.5 cm. longa; pedicelli fructiferi 1.5–2 mm. longi; ovarium parce lepidotum.

A tree, 33 m. tall, 65 cm. diam., branchlets thick, angled, lepidote; leaves with petioles 3–7.5 cm. long; leaf blades chartaceous, slightly paler

beneath, ovate or ovate-elliptic, 8–12 (15) cm. long, 4–7.5 cm. wide, apex broadly acuminate, the acumen obtuse, base rounded and acutish, sparsely lepidote and openly reticulate-veined above, the costa and nerves nearly plane, the costa elevated beneath, lepidote and densely pilose along the sides, the primary lateral veins 4 or 5, pilose below, elevated, the undersurface of the blade lepidote but rather sparingly so at maturity; stipules petiolate, about 1 cm. long, lepidote; panicles densely lepidote, 5–7-branched, subsessile or pedunculate, up to 5.5 cm. long; pedicels of fruits 1.5–2 mm. long; calyx cupular, less than 1 mm. long, lepidote, dentate; fruits red, sparsely lepidote, ovoid-ellipsoid, about 3 mm. long at this stage of maturity.

Guatemala: Dept. Peten, Los Arcos, km. 146 of Cadenas Road, in high forest, east, Dec. 20, 1969, *Elias Contreras 9413* (LL, type), tree, 100 ft. high, 25 in. diam., fruit pink or reddish.

The rather small ovate leaves with only 4 or 5 pairs of lateral nerves appear to distinguish *H. ovatifolia* from *H. alchorneoides* Allemão.

## AQUIFOLIACEAE

**Ilex Tonii** Lundell, sp. nov. — Arbuscula vel arbor, ramulis gracilibus, glabris; folia longe petiolata, petiolo 8–17 mm. longo; lamina glabra, subchartacea, lanceolata, 5.5–9 cm. longa, 1.8–4 cm. lata, apice acuminata, basi acuta, crenato-serrulata; flores axillares, fasciculati; pedicelli usque ad 1.5 cm. longi; sepala ovata, ca. 1 mm. longa, acuminata; fructus subglobosus.

Shrub or small tree, essentially glabrous, branchlets slender; leaves with petiole minutely and sparingly puberulent below at first, otherwise glabrous, the petioles very slender, canaliculate, 8–17 mm. long; leaf blades thin, subchartaceous, glabrous, lanceolate, 5.5–9 cm. long, 1.8–4 cm. wide, apex acuminate, attenuate to the acute base, margin crenate-serrulate, the teeth incurved, blunt, not spinescent, the blade slightly paler beneath, the midvein slender, elevated on both surfaces, the slender lateral nerves 7 or 8 pairs, elevated slightly on both surfaces; flowers fasciculate in the leaf axils; pedicels slender, up to 1.5 cm. long, jointed well above base, minutely puberulent below joint, glabrous above; sepals ovate, about 1 mm. long, acuminate, falling early, the base persistent; young fruits glabrous, subglobose; style distinct, short, thick; stigma capitate, shallowly 6-lobed.

Mexico: Chiapas, Municipio of Amatenango del Valle, grassy slope with *Quercus* south of the center of Amatenango del Valle, elev. 5900 feet, March 14, 1967, *Alush Shilom Ton 2169* (LL, type).

The slender long petioles and pedicels are distinctive.

## CELASTRACEAE

**Euonymus chiapensis** Lundell, sp. nov. — Frutex, ca. 5 m. altus; ramuli glabri; folia glabra, petiolata, petiolo 4–7 mm. longo; lamina subchartacea, oblongo-elliptica vel oblongo-lanceolata, 7–11 cm. longa, 3.5–5 cm. lata, apice acuminata, basi rotundata et acutiuscula, crenulato-serrulata; inflorescentia cymosa, subsessilis, ca. 2 cm. longa; flores 4-meri; sepala ca. 1.2 mm. longa, 3 mm. lata, rotundata; petala late ovata, ca. 3.8 mm. longa, 4 mm. lata; ovarium minute tuberculatum.

Shrub, about 5 m. tall, glabrous, the branchlets quadrangular, slender; leaves dark green, with petioles 4–7 mm. long, canaliculate; leaf blades subchartaceous, oblong-elliptic or oblong-lanceolate, 7–11 cm. long, 3.3–5 cm. wide, apex acuminate, base rounded and acutish, the margin obscurely crenulate-serrulate, the midvein elevated on both surfaces, the primary lateral veins slender, inconspicuous; flowers 4-parted, greenish, cymose, the cymes subsessile, aggregated in the leaf axils, less than 2 cm. long, the branches slender; pedicels slender, up to 7 mm. long; sepals depressed-orbicular, about 1.2 mm. long, 3 mm. wide; petals ovate-orbicular, about 3.8 mm. long, fully 4 mm. wide above base; stamens 4, borne on edge of disk; filaments thick, about 0.8 mm. long; anthers broadly cordate, wider than long, emarginate at apex; ovary obscurely warty.

Mexico: Chiapas, Municipio of Bochil, steep heavily wooded slope with *Taxodium*, *Erythrina*, *Piper* and *Liquidambar* along the river east of Bochil, elev. 5200 feet, April 6, 1968, *Alush Shilom Ton 3992* (LL, type), shrub, 15 ft. tall.

**Maytenus belizensis** Standl., Carnegie Inst. Publ. 461: 69. 1935.

Guatemala: Dept. Izabal, Puerto Mendez, in *zapotal* on top of hill, Sept. 7, 1969, *Elias Contreras 9091* (LL), tree, 35 ft. high, 4 in. diam., fruit orange; Puerto Mendez, in low forest on top of hill, Oct. 6, 1969, *Contreras 9262* (LL), tree, 20 ft. high, 3 in. diam., fruit orange.

Known heretofore only from the type, collected in forest, Jacinto Hills, Toledo District, British Honduras, *W. A. Schipp S617*, the two fruiting collections from Puerto Mendez appear to belong here, although the pedicels are shorter and the fruits larger. The sharply quadrangular and prominently lenticellate twigs are notable.

**Maytenus Corei** Lundell, sp. nov. — Frutex; ramuli gracillimi, glabri; folia glabra, petiolata, petiolo 2.5–4 mm. longo; lamina pallida, chartacea, oblongo-lanceolata vel anguste oblongo-elliptica, 8–11 cm. longa, 2.5–4 cm. lata, apice acuminata, basi rotundata vel acutiuscula, subintegra; inflorescentiae 2–3 mm. longae, glabrae; pedicelli fructiferi crassi, ca. 3.5 mm. longi; capsula ellipsoidea ca. 2 cm. longa, substipitata.

A shrub, 5–20 ft. high, glabrous, the branchlets slender, subquadrangu-

lar; leaves alternate, glabrous, short petiolate, the petioles 2.5–4 mm. long, canaliculate; leaf blades pallid, drying pale brown, chartaceous, oblong-lanceolate or narrowly oblong-elliptic, 8–11 cm. long, 2.5–4 cm. wide, apex acuminate, base rounded or acutish, margin obscurely crenulate apically, subentire, the midvein elevated on both surfaces, the primary lateral veins slender, rather obscure, 8 or 9 pairs; inflorescence reduced, in fruit 2–3 mm. long; pedicels of fruits thick, about 3.5 mm. long; capsules ellipsoid, about 2 cm. long, narrowed into thick stipe at base, glabrous.

Colombia: Dept. Cauca, near San Alfonso, elev. 1800–2000 m., Sept. 8, 1944, *Earl L. Core 1181* (WVA, type; LL, isotype), shrub, 5–20 ft. high; fruit orange, fleshy, the flesh white; seed black.

*M. Corei*, based on a fruiting specimen, appears to be related to *M. Duqueana* Cuatr., which has much longer petioles, and slender shorter pedicels.

**Quetzalia** Lundell, gen nov. — Arbores vel frutices glaberrima, ramulis oppositis; folia opposita, persistentia, petiolata, minute stipulata, coriacea; flores in cymas pedunculatas axillares, parvi, unisexuales; torus patelliformis; sepala 5, raro 4, imbricata, persistentia; petala 5, raro 4, imbricata, libera; stamina 5, raro 4, filamentis subulatis; antherae ovatae; discus carnosus, annularis vel subcupularis; ovarium imperfecte 2-loculare; ovula in loculis 2; capsula coriacea, 2-valvis, 1-locularis.

Small trees, epiphytic or terrestrial shrubs, or woody vines, entirely glabrous; branchlets usually opposite, drying reddish-black, striate; leaves decussate-opposite, entire, discolorous, pinnately veined, minutely stipulate, petiolate; inflorescence cymose, the cymes axillary, solitary, pedunculate, dichasially branched, with each node bibracteate; bracts and bractlets deltoid, carinate or subcarinate, with the margin minutely erose-denticulate, reddish; flowers unisexual, green or pale green, usually pentamerous, sometimes tetramerous (excepting ovary), subsessile or with short thick pedicel; torus patelliform; sepals imbricate, strongly unequal, suborbicular, the inner often equaling the petals in size, persistent at base of fruits; petals entirely free, alternate with sepals, imbricate, attached to base of disk, suborbicular; disk well developed, usually pentagonous, annular or subcupular, confluent with base of ovary, persistent at base of fruits; stamens opposite the sepals, inserted on angles of disk; filaments subulate; anthers versatile, 2-celled, longitudinally dehiscent; rudimentary ovary in staminate flowers half or almost entirely submerged in disk; ovary in pistillate flowers submerged in disk at base, contracted above into a conical style, incompletely 2-celled, with 4 collateral ovules on a short central placenta arising from the base; stigma small, subcapitate; fruits capsular, coriaceous, septicidally dehiscent, 2-valved, 1-celled; endocarp thinly 2-cristate, the thin septa persisting; 1- or 2-seeded, the

seed exarillate, reddish; endosperm abundant, rather hard; embryo large; cotyledons flat, equal, broadly ovate-elliptic, subcordate; radicle terete, thick.

Type species: *Microtropis occidentalis* Loes.

When I published *The American Species of Microtropis* (Contr. Univ. Mich. Herb. 3: 28–35. 1939), it was with some reluctance that I referred the American group to this genus. I did make as strong an argument as possible for the congeneric treatment of the Asiatic and American species and their relationship is admittedly close. But the floral differences are significant.

The torus is patelliform in the American species, now transferred to the new genus, *Quetzalia;* the petals are free, and attached to base of disk; the disk is well developed, fleshy, either annular or subcupular; the filaments are inserted on the angles of the prominent disk; and, the ovary is contracted into a distinct style. In the Asiatic species of *Microtropis*, the torus is suburceolate giving the flowers a dissimilar aspect to those of the American genus, *Quetzalia;* the petals are either free or connate at base; the disk is absent, or very thin and cupular; the filaments are attached either to the short corolla tube or at base of the free petals, or between the angles or lobes of a thin disk; and, the style is thick.

The genus *Quetzalia* is named for the national bird of Guatemala, the quetzal, which lives in the cloud forest of the high mountains where these trees and shrubs grow.

**Quetzalia areolata** (Lundell) Lundell, comb. nov. *Microtropis areolata* Lundell, Wrightia 1: 156. 1946.

**Quetzalia contracta** (Lundell) Lundell, comb. nov. *Microtropis contracta* Lundell, Wrightia 1: 157. 1946.

**Quetzalia guatemalensis** (Sprague) Lundell, comb. nov. *Microtropis guatemalensis* Sprague, Kew Bull. 1909: 364. 1909.

**Quetzalia ilicina** (Standl. & Steyerm.) Lundell, comb. nov. *Microtropis ilicina* Standl. & Steyerm., Field Mus. Pub. Bot. 23: 170. 1944.

**Quetzalia occidentalis** (Loes.) Lundell, comb. nov. *Microtropis occidentalis* Loes., Bot. Gaz. 24: 393. 1897.

**Quetzalia Schiedeana** (Loes.) Lundell, comb. nov. *Microtropis Schiedeana* Loes., Engl. Bot. Jahrb. 29: 98. 1900.

**Quetzalia Standleyi** (Lundell) Lundell, comb. nov. *Microtropis Standleyi* Lundell, Bull. Torrey Club 65: 463. 1938.

**Quetzalia stipitata** (Lundell) Lundell, comb. nov. *Microtropis stipitata* Lundell, Wrightia 1: 158, *fig. 3*. 1946.

**Zinowiewia sulphurea** Lundell, sp. nov. – Arbor glabra; ramuli crassiusculi; folia glabra, petiolata, petiolo 5–8 mm. longo; lamina coriacea, lanceolata, 5–8 cm. longa, 1.5–3 cm. lata, apice acuminata, basi acuta; cymae glabrae, parvae, 5–13 mm. longae; calyx 5-lobatus; petala 5, late ovata, 1–1.2 mm. longa; stamina 5; fructus alatus; semina 2.

A tree, about 20 m. high, with outer bark bright yellow; branchlets thick, reddish, compressed at nodes, grooved medially, glabrous, the internodes short; leaves glabrous, petiolate, the petioles canaliculate, 5–8 mm. long; leaf blades coriaceous, paler beneath, lanceolate, 5–8 cm. long, 1.5–3 cm. wide, apex acuminate, base acute, slightly decurrent on petiole, the midvein impressed above, prominent beneath, the primary lateral veins 6–8 pairs, slender, arcuately ascending, anastomosing, the venation openly reticulate on lower surface, the veins inconspicuous above, cymes glabrous, very small, 2- or 3-branched, 5–13 mm. long, with peduncle up to 4 mm. long, the peduncle and branches stout, subcompressed and grooved medially, congested; pedicels of flowers jointed below the middle, those of medial flower of cyme up to 3 mm. long below joint, the pedicels of terminal flowers about 1 mm. long; bracts and bractlets acuminate; calyx deeply 5-lobed, the lobes imbricate, fleshy, broadly ovate, about 0.6 mm. long, with erose margin, the teeth reddish; petals broadly ovate, 1–1.2 mm. long, apex rounded; stamens 5, borne on margin of fleshy annular disk, the filaments about 0.3 mm. long; anthers ovate, about 0.3 mm. long, rounded at apex; ovary submerged in disk; samara 2-celled, 2-seeded; seeds straight, about 5 mm. long.

Colombia: Dept. Cauca, camp near Cerro San Pedro, in forest, elev. 2500 m., Sept. 11, 1944, *Earl L. Core 1221* (WVA, type; LL, isotype), tree 60 ft. high; flowers small, greenish; fruit winged; outer bark bright yellow.

The soft corky bright yellow bark is very unusual, and unique in the Celastraceae as far as I know. *Z. sulphurea* is further characterized as distinct in having very small cymes, forked only 2 or 3 times. Unfortunately only a single fragmentary samara is available, and this is 2-seeded as in *Z. costaricensis* Lundell.

## ICACINACEAE

**Mappia multiflora** Lundell, sp. nov. – Arbor, usque ad 16 m. alta, 25 cm. diam., ramulis strigillosis, lenticellatis; folia petiolata, petiolo 7–20 mm. longo; lamina membranacea, oblanceolata, 8–15 cm. longa, 2.5–5 cm. lata, apice acuminata, basi cuneata vel acuta, novella utrinque strigillosa; inflorescentia cymoso-paniculata, multiflora, ramosa, usque ad 7 cm. longa, strigillosa; pedicelli usque ad 2 mm. longi; calyx parvus, denticulatus; petala oblongo-oblanceolata, 3–3.4 mm. longa, usque ad 1.2 mm.

lata, intus dense villosa; stamina libera, 2.5–3 mm. longa; ovarium dense strigosum; fructus ca. 1.7 cm., longus, apice acutiusculus, basi rotundatus.

A tree, up to 16 m. tall, 25 cm. in diam., the branchlets rather slender, strigillose at first, glabrate early, conspicuously lenticellate; leaves with slender strigillose shallowly canaliculate petioles 7–20 mm. long; leaf blades membranaceous, oblanceolate, 8–15 cm. long, 2.5–5 cm. wide, apex acuminate, the acumen usually obtusish, base attenuate, acute or cuneate, strigillose on both surfaces at first, glabrate, the midvein nearly plane above, prominent beneath, the primary lateral veins 7 to 9 pairs, slender but well developed and conspicuous, with domatia in the axils; inflorescence cymose-paniculate, with numerous short apical branches, many-flowered, strigillose, up to 7 cm. long, with mostly short peduncles less than 2.5 cm. long; pedicels short, up to 2 mm. long, jointed at base of calyx; calyx patelliform, minutely 5-toothed, the teeth acute, sparsely strigose dorsally, glabrous within, about 1.4 mm. in diam., 0.5–0.8 mm. high; petals 5, oblong-oblanceolate, 3–3.4 mm. long, up to 1.2 mm. wide, conspicuously villous within over entire surface, sparsely strigillose without, the hairs mostly apical, apex inflexed; stamens 5, free, 2.5–3 mm. long; anthers oblong, about 1 mm. long, emarginate at apex; pistil 2 mm. high, appressed hirsute, the stigma capitate, the style short, with few appressed hairs; disk fleshy, glabrous without, hairy within; ovary 1-celled, ovules 2, pendent from apex of locule; fruit ovoid-ellipsoid, up to 1.7 cm. long when dry, mesocarp fleshy, crushing on drying, the apex acutish, the base rounded, sparsely strigillose even when ripe.

British Honduras: Toledo District, in high ridge, on hill slope, Sulphur Hill, Edwards Road beyond Columbia, Jan. 15, 1948, *Percy H. Gentle 6365* (LL, type), tree, 9 in. diam., flowers creamish color.

Guatemala: Dept. Peten, Cadenas, in low forest bordering Rio Sarstun, March 18, 1967, *Elias Contreras 6781*, tree, 50 ft. high, 8 in. diam., fruit red-purple.

This is apparently the tree reported in the *Flora of Guatemala* (Fieldiana Bot. 24, pt. 6: 228. 1949) as *M. racemosa* Jacq. The relationship to this West Indian tree is close, but *M. multiflora* has larger much-branched inflorescences, smaller flowers, strigillose branchlets, and thin membranaceous leaves with more prominent venation. *M. multiflora* grows at or near sea level, while *M. racemosa* is a species of higher altitudes, from 1500 to 3600 feet.

## BOMBACACEAE

**Hampea ovatifolia** Lundell, sp. nov. — Arbor parva, ramulis minute tomentellis; folia petiolata, petiolo 2.5–8 cm. longo; lamina chartacea, ovata vel ovato-elliptica, 7.5–14 cm. longa, 5–8.5 cm. lata, basi cordata

vel interdum truncata, apice acuminata vel caudato-acuminata, integra, palmatim 5-nervata, supra glabrata, infra minute et albido-tomentella, domatiis nullis; nectaria foliorum 1, parva; pedicelli fructiferi 1.5–2 cm. longi, minute tomentelli; calyces 5-lobati, 4–6 mm. longi, tomentelli; capsula 3-loculata, globosa, usque ad 1.5 cm. diam.; semina 2 vel 3 per loculum.

Small tree, about 12 m. tall, 7.5 cm. in diam.; branchlets finely tomentose with brownish hairs; leaves long petiolate, the petioles 2.5–8 cm. long, tomentellous at first; leaf blades ovate or ovate-elliptic, 7.5–14 cm. long, 5–8.5 cm. wide, base shallowly cordate to truncate, apex acuminate, chartaceous, paler beneath, whitish at first, the pubescence above mostly along the nerves, persistently and finely tomentellous beneath, with a single small nectary at base, without domatia, the margin entire, rarely undulate, 5-nerved; flowers single in leaf axils; pedicels of fruits slender, 1.5–2 cm. long, tomentellous; involucral nectaries lacking, the bases of the 3 bractlets persistent, elevated; calyx campanulate, 4–6 mm. long, mostly 5-lobate to middle, the lobes reflexed, tomentellous; capsules minutely tomentellous, globose, 3-celled, up to 1.5 cm. in diam., woody, the carpel walls glabrous within except for fine hairs along suture; seed 2 or 3 in each cell, arillate.

Guatemala: Dept. Peten, La Cumbre, in high forest on top of rocky hill, west of km. 142 of Cadenas Road, Aug. 9, 1969, *Elias Contreras 8877* (LL, type), tree, 35 ft. high, 3 in. diam., fruits greenish.

With apparent affinity to *H. trilobata* Standl., this rain forest species differs in having entire 5-nerved ovate leaves nearly white on undersurface at first, indument of very fine minute closely appressed stellate hairs, and capsules with only 2 or 3 seeds in each cell. The slender acumen is often caudate, whereas it is broad in *H. trilobata*. The nectary at base of leaf blade is very small compared with that of other species.

## FLACOURTIACEAE

**Xylosma albidum** Lundell sp. nov. — Frutex, ramulis gracilibus; folia glabra, petiolata, petiolo 4–7 mm. longo; lamina chartacea vel subcoriacea, late ovata vel elliptica, 4–6.5 cm. longa, 2.7–5.3 cm. lata, apice obtusiuscula, basi acuta, crenato–serrata; flores hermaphroditi, racemis dense albido-puberulis; pedicelli crassi, 1–1.8 mm. longi; sepala lanceolata, 1.2–1.5 mm. longa, albido-ciliata; stamina 26–32, usque ad 3 mm. longa; ovarium glabrum; stylus crassus bilobus.

A shrub, about 3 m. high, unarmed, the branchlets slender; leaves glabrous, petiolate, the petioles 4–7 mm. long, canaliculate; leaf blades chartaceous or subcoriaceous, broadly ovate or elliptic, 4–6.5 cm. long, 2.7–5.3 cm. wide, apex usually obtusish, base acute and decurrent, the

margin conspicuously crenate-serrate with rounded incurved teeth, the midvein slightly and narrowly elevated above, conspicuous beneath, the primary lateral veins slender, 5 or 6 pairs, evident on both surfaces; flowers perfect, racemose, the racemes in fruit up to 1.3 cm. long, densely white-puberulent or subtomentose, the white indument short but conspicuous and often matted; pedicels very short, stout, 1–1.8 mm. long, the bracts subtending pedicels conspicuous, about a third shorter than pedicels; sepals lanceolate, 1.2–1.5 mm. long at anthesis, up to 2 mm. long in fruit, keeled, conspicuously ciliate with white hairs, otherwise nearly glabrous outside; stamens 26–32, up to 3 mm. long; glands of disk conspicuous; ovary glabrous, the thick style subequaling ovary, the stigma thick, shallowly bilobed; fruits ovoid, glabrous.

Mexico: Chiapas, Municipio of Venustiano Carranza, wooded slope near Venustiano Carranza along the road to Pugiltic, elev. 2800 feet, Oct. 25, 1966, *Robert M. Laughlin 2693* (LL, type; DS, isotype), shrub 10 feet tall; Las Garzas, Acapet., Jan. 1939, *Eizi Matuda 2693* (LL).

The perfect flowers, racemose inflorescence, short stout pedicels, and unarmed branches, combined with the white minute subtomentose indument of the inflorescence, well-mark the species. The rather stiff leaves are conspicuously crenate-dentate.

## MYRTACEAE

**Calyptranthes izabalana** Lundell, sp. nov. — Arbor parva, glabra, ramulis gracilibus, glabris; folia glabra, subsessilia, petiolo 2–3.5 mm. longo; lamina coriacea, elliptica, ovato-elliptica vel raro obovato-elliptica, apice obtuse acuminata, basi acutiuscula vel rotundata; inflorescentia paniculata, 5–9 cm. longa, glabra; fructus globosus, ca. 8 mm. diam.

A tree, 15 m. high, 20 cm. in diam.; branchlets slender, nearly terete, compressed at nodes and with narrow medial ridge extending downward; leaves glabrous, subsessile or short petiolate, the petioles thick, canaliculate, 1.5–3.5 mm. long; leaf blades coriaceous, paler beneath, elliptic, ovate-elliptic or sometimes obovate-elliptic, 4–7 cm. long, 2–4.7 cm. wide, apex obtusely short acuminate, base acutish to rounded; midvein conspicuously elevated above even at base, elevated beneath, the lateral veins very obscure on both surfaces, close and parallel, the marginal vein obscure, 1–2 mm. from margin; panicles few-flowered, 5–9 cm. long, slender, the peduncle terete, up to 6.5 cm. long; fruits globose, drying about 8 mm. in diam., sessile or nearly so, glabrous; base of hypanthium crowning fruits collar-like, about 2.5 mm. in diam.

Guatemala: Dept. Izabal, Cadenas (Puerto Mendez), on top of hill, front of football field, in *zapotal,* Sept. 7, 1969, *Elias Contreras 9090*

(LL, type), tree, 45 ft. high, 8 in. diam., fruit dark red, "*guayabillo*."

I was inclined at first to refer this collection to *C. mexicana* Lundell, which is regarded by McVaugh as a variety of *C. pallens* Griseb. (Fieldiana Bot. 29: 409. 1963). *C. izabalana*, of which only fruiting specimens are available, most certainly belongs to the *C. pallens* complex, but the conspicuous midvein elevated on upper leaf surface is unique, for the midvein is impressed in all collections of *C. pallens* examined from Florida, the West Indies and Middle America. McVaugh, who gives considerable weight to characteristics of the midvein in his studies of the Myrtaceae, consistently describes the midvein of *C. pallens* as impressed at base above. *C. izabalana* in fruit is completely glabrous, few-flowered, and the broad thick leaves are subsessile with the thick petiole usually not over 2.5 mm. long. The branchlets are not winged, but a narrow ridge extends below the upper nodes.

**Eugenia cayoana** Lundell, sp. nov. — Frutex, 4 m. altus, glaber; ramuli gracillimi; folia glabra, petiolata, petiolo crasso, 7–10 mm. longo, canaliculato; lamina subcoriacea, lanceolata vel anguste elliptica, 8.5–14 cm. longa, 3–6 cm. lata, apice late acuminata, acumine obtuso, basi acutiuscula; inflorescentia axillaris, usque ad 3 mm. longa, glabra; pedicelli fructiferi ca. 1 mm. longi, crassi; bracteolae ciliatae, usque ad 1.8 mm. longae, 3 mm. latae; fructus ellipsoideus.

Large shrub, 4 m. tall, entirely glabrous in fruit except for the ciliate bracts and bracteoles; branchlets subcompressed at the nodes; leaves rather large, petiolate, the petioles stout, shallowly canaliculate above, 7–10 mm. long; leaf blades subcoriaceous, only slightly paler beneath, lanceolate or narrowly elliptic, 8.5-14 cm. long, 3 6 cm. wide, apex acuminate, the acumen very obtuse or rounded, base acutish, decurrent on the petiole, the midvein impressed above and with marginal ridges, conspicuous and elevated beneath, openly reticulate-veined, primary veins slender, the primary 7 to 9 pairs with subequal intermediaries, united into slender marginal vein 3 8 mm. from margin, the veins evident but inconspicuous on upper surface; the abbreviated racemes stout, axillary, with short thick axis less than 3 mm. long, the flowers few, probably not more than 3 or 4 in axil; fruiting pedicels not over 1 mm. long; bracteoles large, involucrate, united at basal edges, up to 1.8 mm. long, 3 mm. wide, thick, ciliate, punctate; immature fruits ellipsoid, 1 cm. in diam.; calyx lobes crowning fruits thick, subequal, broadly rounded, the smaller about 4.5 mm. wide, 1.5 mm. long, the larger about 5 mm. wide, 2 mm. long, cucullate; disk 3 mm. in diam., glabrous.

British Honduras: El Cayo District, ravine south of Baldy Beacon, Bald Hills, alt. ca. 3000 ft., moist broadleaf woodland near stream, Dec. 9, 1968, *George R. Proctor 29778* (LL, type), large shrub 4 m. tall.

In *E. cayoana* the fruits are subsessile and borne on a very short axis nearly as thick as long and scarcely apparent.

**Eugenia izabalana** Lundell, sp. nov. — Frutex vel arbor parva, ramulis dense puberulis, angulatis; folia petiolata, petiolo 3–5 mm. longo; lamina subglabra, chartacea, elliptica vel lanceolato-elliptica, 3.5–7.5 cm. longa, 1.2–3.3 cm. lata, apice acuminata, basi acutiuscula; inflorescentia parce puberula, racemosa; pedicelli 1.5–3 mm. longi; bracteolae parvae, ca. 0.5 mm. longae, liberae; hypanthium glabrum vel puberulum; calycis lobi inaequales, oblongi, majores ca. 2 mm. longi, ciliati; discus ca. 1.3 mm. diam.; ovula 6 vel 7.

Shrub or small tree up to 10 m. high, 10 cm. in diam.; branchlets slender, compressed at the nodes, brownish, densely puberulent with short incurved hairs; leaves with short slender nearly terete petioles 3–5 mm. long, puberulent like the branchlets; leaf blades chartaceous, elliptic or lanceolate-elliptic, 3.5–7.5 cm. long, 1.2–3.3 cm. wide, apex acuminate, the acumen acutish to obtuse, base acutish, midvein inconspicuously impressed above, elevated beneath, the primary lateral veins slender, 7–9 pairs, with marginal vein 1–2 mm. from margin, the margin revolute, at first pubescent along the midvein on both surfaces, sparingly puberulent beneath, essentially glabrous, only slightly paler beneath; minutely punctate; inflorescence a short axillary raceme, the racemes sometimes superposed, the raceme-axis 2–6 mm. long, bearing 2–8 opposite, decussate pairs of flowers; terminal flower abortive, the inflorescence sparingly puberulent with ascending hairs; pedicels 1.5 3 mm. long, apparently accrescent; bracteoles distinct, small, ovate-oblong, up to 0.5 mm. long, persistent, hairy; hypanthium glabrous or puberulent, 1 mm. long at anthesis; calyx lobes in unequal pairs, oblong, the outer ones (at anthesis) 1.75 mm., the inner 2 mm. long, ciliate, glabrous otherwise except for a few hairs without, accrescent; disk glabrous or puberulent, about 1.3 mm. in diam.; style 5 mm. long; stamens up to 4 mm. long; petals broadly elliptic, 3–3.5 mm. long; ovary bilocular, the ovules 6 or 7 in each locule.

Guatemala: Dept. Izabal, Cadenas (Puerto Mendez), in *zapotal* on top of hill about 3 km. from the village, bordering the Sarstun River, Sept. 21, 1969, *Elias Contreras 9044* (LL, type), small tree, 25 ft. high, 4 in. diam., flowers white, "*guayabillo*." Also represented by *Contreras 9046*, *9101* and *9129* from the same general area.

The relationship appears to be with *E. yucatanensis* Standl., but the small distinct bracteoles and the nature of the pubescence easily distinguish it from that species.

**Myrciaria longicaudata** Lundell, sp. nov. — Arbor, ramulis gracilibus, glabris; folia glabra, petiolata, petiolo 5–11 mm. longo; lamina mem-

branacea, oblongo-lanceolata, 6–14 cm. longa, 2–4 cm. lata, apice caudato-acuminata, basi acuta vel subcuneata; inflorescentia axillaris; pedicelli 1–2 mm. longi; bracteolae imbricatae, late ovatae, ca. 2 mm. longae, 3 mm. latae, acutae, ciliatae; hypanthium campanulatum, glabrum, ca. 2 mm. longum; stylus ca. 7 mm. longus; ovarium hirsutum, biloculare, ovulis quoque loculo duobus.

A tree, 20 m. high, 30 cm. in diam., the branchlets glabrous, somewhat compressed, slender, conspicuously glandular-punctate; leaves glabrous, petiolate, the petioles slender, canaliculate, 5–11 mm. long; leaf blades glabrous, membranaceous, drying uniformly pale green on both surfaces, oblong-lanceolate or narrowly oblong-elliptic, sometimes oblanceolate, 6–14 cm. long, 2–4 cm. wide, apex caudate-acuminate, the cusp up to 2.5 cm. long, base acute or subcuneate, decurrent slightly on petiole, glandular-punctate with scattered large glands, the costa elevated beneath, nearly plane above, broad, sometimes slightly elevated, the lateral veins numerous, very slender, ascending at a very wide angle, converging into marginal vein about 1 mm. from the revolute edge of blade; flowers axillary, in clusters, or with short raceme bearing two or three flowers, usually only 2 to 6 flowers at a node, the pedicels 1–2 mm. long, with conspicuous ciliate bracts at base; bracteoles fleshy, conspicuous, involucrate, imbricate at base, broadly ovate, about 2 mm. long, 3 mm. wide at base, ciliate, otherwise glabrous, acute, conspicuously punctate; hypanthium fleshy, campanulate, glabrous, prolonged 1.5–2 mm. beyond the summit of ovary, its base about 1.2 mm. in diam. at time of abscission; calyx lobes splitting irregularly, ciliate, pubescent within; stamens numerous; petals subrotund, with short claw, ciliate, punctate, about 2 mm. long, 2.5 mm. wide; ovary hirsute apically; style glabrous, about 7 mm. long; locules 2, with 2 ovules in each locule.

Guatemala: Dept. Peten, La Cumbre, west of km. 140 of Cadenas Road, in high forest, Aug. 1, 1969, *Elias Contreras 8816* (LL, type), tree, 60 ft. high, 12 in. diam., flowers white.

*M. longicaudata* is a remarkably distinct species probably related to the endemic, *M. Ibarrae* Lundell, known only from the vicinity of Dos Lagunas in northern Peten. The large thin caudate-acuminate leaves, glabrous compressed branchlets, large imbricate acute bracteoles, and pedicels up to 2 mm. long are among the distinguishing features of *M. longicaudata*. It is the third species of *Myrciaria* recorded from Peten, the others being the rather common *M. floribunda* (Willd.) Berg and the aforementioned *M. Ibarrae* Lundell.

## MYRSINACEAE

**Ardisia Dwyeri** Lundell, sp. nov. – Frutex, ca. 3 m. altus; ramuli crassiusculi, furfuracei; folia petiolata, petiolo 5–10 mm. longo; lamina

chartacea vel subcoriacea, oblonga vel anguste elliptico-oblonga, 6.5–13 cm. longa, 2–3 cm. lata, apice acuta, basi acuta, integra, supra glabrata, subtus lepidota; inflorescentia parva, terminalis, paniculata, 3.5–6.5 cm. longa, furfuracea; flores 5-meri, umbellati; pedicelli crassi, 3–5 mm. longi; sepala rotundata, 1.7–2 mm. longa, ciliolata, punctata; corolla glabra, ca. 6.5 mm. longa; filamenta ca. 1.6 mm. longa; antherae crassae, lanceolatae, ca. 2.8 mm. longae; ovarium glabrum; ovula pluriseriata, numerosa; fructus subglobosus, ca. 8 mm. diam.

Shrub, about 3 m. high, branchlets furfuraceous, rigid, slender to thickish; leaves petiolate, petioles stout, 5–10 mm. long, canaliculate, densely furfuraceous on lower side; leaf blades chartaceous to subcoriaceous, brownish beneath, grayish above, oblong or narrowly elliptic-oblong, 6.5–13 cm. long, 2–3 cm. wide, apex acute, base acute, margin entire, persistently brown-lepidote beneath, glabrate above, the midvein narrowly impressed above, prominent beneath, the primary lateral veins very slender and inconspicuous; inflorescence small, terminal, bipinnately paniculate, 3.5–6.5 cm. long, densely furfuraceous, brown; flowers umbellate, 5-parted; pedicels thick, 3–5 mm. long, sparsely lepidote; sepals symmetrical, depressed-orbicular, 1.7–2 mm. long, rounded at apex, ciliolate, conspicuously punctate with red marginal and black medial glands; corolla glabrous, about 6.5 mm. long, the petals united at base, the campanulate tube 1.7–2 mm. high, the petals oblong-elliptic, symmetrical, black-punctate; stamens attached medially to corolla tube, the filaments thick, about 1.6 mm. long; anthers thick, lanceolate, widest at base, about 2.8 mm. long, glandular-punctate dorsally, the glands inconspicuous, not blackened; ovary glabrous; style slender, punctate, about 4 mm. long; ovules pluriseriate, numerous; fruits subglobose, about 8 mm. in diam.

Panama: Prov. Panama, Cerro Jefe, roadside thicket, alt. ca. 2,900 ft., Aug. 20, 1967, *J. D. Dwyer & S. M. V. Hayden 8082* (LL, type; MO, US, isotypes), shrub to 10 ft., buds purplish gray; beyond Goofy Lake along road to Cerro Jefe, Nov. 16, 1967, *Mireya D. Correa A. & R. L. Dressler 462* (MO), tree 8 ft. high.

Seemingly related to *A. blepharodes* Lundell of Costa Rica, *A. Dwyeri* differs notably in its oblong not oblanceolate leaves, small bipinnately not large tripinnately paniculate inflorescences, and in having conspicuously pedicellate flowers.

**Ardisia Lewisii** Lundell, sp. nov. — Frutex, 1.5 m. altus, glaber, ramulis gracilibus; folia glabra, petiolata, petiolo 2–5 mm. longo, marginato; lamina glabra, subchartacea, lanceolato-elliptica vel oblongo-elliptica, 5.5–10.5 cm. longa, 2.5–3.8 cm. lata, apice acuminata, basi acutiuscula, dense punctata, subintegra; inflorescentia glabra, terminalis, paniculata,

usque ad 8 cm. longa; flores 5-meri, corymboso-racemosi; pedicelli 6.5 mm. longi; sepala ovato-elliptica, punctata; ovarium glabrum; ovula pluriseriata.

Shrub, 1.5 m. high, entirely glabrous; branchlets slender; leaves petiolate, the petioles canaliculate, marginate, 2–5 mm. long; leaf blades glabrous, thin, subchartaceous, lanceolate-elliptic or oblong-elliptic, 5.5–10.5 cm. long, 2.5–3.8 cm. wide, apex acuminate, base acutish, decurrent, conspicuously punctate, the margin subentire, midvein nearly plane above, elevated beneath, the lateral veins very slender, scarcely discernible; inflorescence terminal, paniculate, subsessile, glabrous, the flowers corymbose-racemose; the racemes slender, subcorymbose from base of panicle, up to 6.5 cm. long, the apical two-thirds bearing flowers, angled and inconspicuously bracteate at base of each pedicel; pedicels of flower buds slender, up to 6.5 mm. long; flower buds ovoid, glabrous; sepals 5, ovate-elliptic, about 1.6 mm. long (in bud), conspicuously punctate; petals and stamens 5; ovary glabrous; placenta ovoid, ovules pluriseriate.

Panama: Colon, Santa Rita Ridge, ca. 5.5–6 miles E of Transisthmian Highway, in rain forest, April 9, 1969, *W. H. Lewis, et al. 5377* (LL, type), shrub 1.5 m. high, flower buds bright pink.

*A. Lewisii* is a very unusual taxon from the nature of its inflorescence. The racemes, corymbose from base of panicle, are slender and elongate with the flowers congested along the apical two-thirds of the rachis. Unfortunately, only flower buds are available, but they are corymbose at the apex of the rachis, so we can conclude that the flowers are corymbose-racemose. In the absence of fully developed flowers, the relationships of the species are doubtful.

**Ardisia megistophylla** Lundell, sp. nov. — Frutex, 2 m. altus; ramuli crassi, furfuracei; folia petiolata, petiolo crasso, usque ad 4.5 cm. longo, marginato; lamina chartacea, lepidota, elliptica vel oblanceolato-elliptica, usque ad 60 cm. longa, 18 cm. lata, apice angustata, basi attenuata, integra; inflorescentia terminalis, paniculata, usque ad 25 cm. longa, furfuracea; flores umbellati; pedicelli fructiferi crassi, ca. 2 mm. longi; sepala lepidota, ovato-elliptica, usque ad 2 mm. longa, nigro-punctata, apice rotundata; ovula pluriseriata; fructus subglobosus, 6–8 mm. diam.

Shrub, 2 m. high, furfuraceous, branchlets thick; leaves very large, with thick canaliculate petioles conspicuously marginate to base, the petiole up to 4.5 cm. long; leaf blades paler beneath, chartaceous, elliptic or oblanceolate-elliptic, up to 60 cm. long, 18 cm. wide, apex narrowed, probably short-acuminate, base attenuate and decurrent on the petiole, densely covered beneath with closely appressed brownish scales, the midvein impressed above, prominent beneath, the primary lateral veins numerous, slender but conspicuous on undersurface, less evident above,

the nerves almost at right angles to costa, the intermediaries well developed, margin entire; inflorescence terminal, paniculate, up to 25 cm. long, with thick peduncle and rachis, furfuraceous; flowers umbellate, the short thick pedicels about 2 mm. long; sepals lepidote, ovate-elliptic, up to 2 mm. long, the apex rounded, the margin erose-ciliate but this not always evident, punctate with conspicuous black rounded glands; ovary glabrous; ovules pluriseriate, numerous; fruits depressed-globose, 6–8 mm. in diam.

Colombia: Dept. del Choco, costa del Pacifico, ensenada de Utria, en selva, June 5, 1950, *A. Fernandez 251* (US, type), arbusto de 2 m., fruto vino tinto.

Panama: Veraguas, mouth of Rio Concepcion, beach, cliffs and adjacent swamp, Dec. 4, 1967, *W. H. Lewis et al. 2808* (LL, MO).

*A. megistophylla,* a coastal shrub possibly related to *A. Wedelii* Lundell of Panama, has the largest leaves of any American species, exceeding two feet in length. It somewhat resembles *Weigeltia purpurea* Cuatr. Only fruiting material is available, and flowers are needed to clarify relationships. The sepals in *A. Wedelii* are acuminate and smaller, and the leaves narrower and smaller, and the inflorescence congested.

**Ardisia salvadorensis** Lundell, sp. nov. — Arbor parva, ramulis gracilibus, minute furfuraceis; folia petiolata, petiolo marginato, 3.5–6 mm. longo, subtus minute furfuraceo; lamina subchartacea, glabra, elliptica vel oblanceolato-elliptica, 5–11 cm. longa, (2) 3–4.7 cm. lata, apice obtusa vel subacuminata, base rotundata, integra; inflorescentia parva, paniculata, basi minute furfuracea; flores 5-meri, corymbosi; pedicelli 2.5–5 mm. longi; sepala late ovata, ca. 1 mm. longa, minute rubro-punctata; corolla 4 mm. longa, punctata; filamenta ca. 1.2 mm. longa; antherae 2–2.4 mm. longae, epunctatae; ovarium minute punctatum; stylus ca. 4 mm. longus; ovula pluriseriata.

Slender tree, 5–6 m. tall, branchlets slender, minutely and densely furfuraceous at first, brownish; leaves petiolate, the petioles shallowly canaliculate, marginate, 3.5–6 mm. long, minutely furfuraceous on lower surface, glabrous above; leaf blades thin, subchartaceous, glabrous, elliptic or oblanceolate-elliptic, 5–11 cm. long, (2) 3–4.7 cm. wide, apex obtuse or subacuminate with obtusish acumen, base narrowed, rounded and decurrent on petiole, margin entire, the midvein shallowly channeled or nearly plane above, elevated beneath, primary and secondary veins slender, scarcely evident above, the upper surface opaque and smooth; inflorescence terminal, or rarely lateral, small, paniculate, 2.5–5 cm. long, minutely furfuraceous, the short peduncle densely so; flowers 5-parted, corymbose, the pedicels slender, 2.5–5 mm. long, nearly glabrous; sepals broadly ovate, about 1 mm. long, rounded at apex, conspicuously punctate

with small mostly round or oblong red glands, these rather dense; corolla 4 mm. long, the lobes elliptic-oblong, symmetrical, rounded at apex, reflexed at anthesis, united at base into tube 1 mm. high, punctate with small rounded red glands and rather pale medial lines; stamens attached in tube, the free filament about 1.2 mm. long, glabrous; anthers epunctate, 2–2.4 mm. long, widest at base, tapering to the minutely apiculate apex, dehiscent by apical pores; ovary glabrous, minutely punctate; style slender, about 4 mm. long, punctate; ovules pluriseriate.

El Salvador: Dept. Morazan, finca of General J. T. Calderon, Montes de Cacaguatique, in dense oak forest, near western boundary, alt. ca. 1380 m., Dec. 30, 1941, *John M. Tucker 674* (LL, type; UC, US, isotypes), slender tree 5–6 m. tall; petals pale pink; calyx red; fruit subglobose, flattened at ends, red-brown, 5.7 mm. across.

**Ardisia tenuis** Lundell, sp. nov. — Frutex vel arbor parva, ramulis gracilibus, furfuraceis; folia petiolata, petiolo 2–3 (6) mm. longo, canaliculato; lamina membranacea, lanceolata, 5.5–10 cm. longa, 1.5–3.5 cm. lata, apice caudata, basi rotundata et acutiuscula, subintegra, punctata, supra glabra, subtus parce lepidota; inflorescentia terminalis, tenuis, furfuracea, paniculata, usque ad 8 cm. longa; pedicelli 3.5–7.5 mm. longi; flores umbellati, 5-meri; sepala ovata, ca. 1 mm. longa, acuta, erosa, nigro-punctata, parce furfuracea; corolla glabra, punctata, ca. 2.5 mm. longa; filamenta crassa, ca. 0.9 mm. longa; antherae crassae, ovato-cordatae, ca. 1 mm. longae, apiculatae; ovarium glabrum; ovula 7, biseriata; fructus globosus, ca. 6 mm. diam.

Shrub or small tree, the branchlets very slender, red-brown, densely furfuraceous; leaves short-petiolate, the petioles 2–3 (6) mm. long, canaliculate, furfuraceous; leaf blades membranaceous, lanceolate, 5.5–10 cm. long, 1.5–3.5 cm. wide, apex caudate-acuminate, base rounded and acutish, subentire, conspicuously punctate, thinly lepidote beneath, glabrous above, the midvein impressed above, elevated beneath, the primary lateral veins slender; inflorescence terminal, furfuraceous, very slender, leafy at base, tripinnately paniculate, up to 8 cm. long, the branches few, elongate; pedicels slender, 3.5–7.5 mm. long; flowers umbellate, 5-parted; sepals ovate, about 1 mm. long, acute, black-punctate medially, sparsely furfuraceous, the margin erose; corolla glabrous, about 2.5 mm. long, the petals lanceolate-elliptic, united at base into tube about 0.7 mm. high, punctate; filaments thick, about 0.9 mm. long; anthers thick, ovate-cordate, about 1 mm. long, apiculate; ovary glabrous; style slender, about 2.5 mm. long; ovules 7, biseriate; fruits globose, about 6 mm. in diam.

Panama: Prov. Darien, Cerro Pirre, in elfin forest, alt. 2500-4500 ft., Aug. 9-10, 1967, *J. A. Duke & T. S. Elias 13762* (LL, type; GH, MO, US, isotypes), common shrub, petals cream colored with purplish dots; ascent

of Cerro Pirre, from Rio Pirre S of El Real, 750-1030 ft., Aug. 11, 1962, *Duke 5335* (MO), shrub or small tree; cloud forest and mossy forest, Cuasi-Cana Trail between Cerro Campamiento and La Escalera to "Paramo," E of Tres Bocas, April 30, 1968, *Joseph H. Kirkbride, Jr. & James A. Duke 1265* (MO), shrub, fruits green turning bright red.

*A. tenuis* is well-marked by its small flowers, ovate-cordate anthers, thin caudate leaves, and furfuraceous indument.

**Gentlea Molinae** Lundell, sp. nov. — Frutex, ramulis juventate minute rufo-lepidotis; folia petiolata, petiolo canaliculato, 7–10 mm. longo; lamina glabra, chartacea, elliptica vel lanceolata, (3) 5–8 cm. longa, 1.4–3.5 cm. lata, apice acuminata, acumine obtusiusculo, basi acuta, margine revoluta; inflorescentia parce et minute lepidota, terminalis, paniculata, usque ad 2.5 cm. longa; pedicelli fructiferi 2–5 mm. longi; sepala 4, lanceolata vel ovata, 1.5–2 mm. longa, acuta vel subacuminata, erosa; fructus subglobosus, ca. 5 mm. diam.

A shrub, 2–4 m. high; branchlets slender, at first with a dense minute reddish indument appearing to be furfuraceous and papillate; leaves small, petiolate, the petioles slender, 7–10 mm. long, canaliculate and glabrous above, with indument beneath like the branchlets; leaf blades chartaceous, pitted beneath with minute reddish glands, essentially glabrous, elliptic or lanceolate, (3) 5–8 cm. long, 1.5–3.5 cm. wide, apex acuminate, the acumen usually obtusish, base acute and decurrent on the petiole, margin revolute especially at base, upper surface nearly smooth with veins scarcely evident, the midvein impressed as a narrow line, nearly plane, the veins on lower surface slender, not reticulate, rather obsure, the costa conspicuous and elevated; inflorescence small, terminal, paniculate, up to 2.5 cm. long, with peduncle less than 5 mm. long, the indument like that of the branchlets, but sparser; fruiting pedicels 2–5 mm. long, terete, rather stout; sepals usually 4, thin, lanceolate or ovate, 1.5–2 mm. long, subtending fruits, acute or subacuminate, the margin erose, glandular; fruits depressed globose, drying about 5 mm. in diam.

Honduras: Dept. La Paz, cut over cloud forest of Montaña Verde on Cordillera Guajiquiro, alt. 1900 m., Mar. 23, 1969, *Antonio Molina R. & Albertina R. Molina 24389* (LL, type), fruits red, shrub 3–4 m. high; cut over cloud forest area between Las Marias and Montaña Verde, Cordillera Guajiquiro, alt. 1900 m., Mar. 6, 1969, *Antonio Molina R. 24052* (LL), shrub 3 m.; cut over mixed forest between Las Marias and El Cerron on Cordillera Guajiquiro, alt. 1700 m., Mar. 20, 1969, *Molina & Molina 24225* (LL), shrub 2–3 m., common in forest.

In fragments of dried flowers, persistent in the inflorescence, the corolla is about 2.3 mm. long, with lanceolate corolla lobes united at base, acumi-

nate apically. The filaments, free to base, are 3.5–4 mm. long. The typical small ovate anthers are about 0.4 mm. long.

*G. Molinae* appears to have affinity to *G. venosissima* (Ruiz & Pavon) Lundell, but differs at once in its small non-reticulate leaves which are smooth above and revolute at base, and in having larger thin sepals. The minute indument of the two species is quite similar.

Flowering material of all the Central American species is needed to better clarify relationships.

**Parathesis amplifolia** Lundell, sp. nov. — Arbor parva; ramuli rufo-tomentosi, crassi; folia longe petiolata, petiolo 3.5–5.5 cm. longo; lamina subcoriacea, elliptica vel oblongo-elliptica, 13–22.5 cm. longa, 6.5–10 cm. lata, apice subabrupte acuminata, basi acutiuscula, integra, supra glabra, subtus tomentosa; inflorescentia terminalis, pyramidalis, paniculata, rufo-tomentosa; pedicelli usque ad 5 mm. longi; sepala ovato-triangularis, 1.5–2 mm. longa, acuta; corolla 6 mm. longa, lineato-picta; stamina ca. 3.5 mm. longa; antherae versatiles, ca. 2 mm. longae, dorso nigro-punctatae; ovarium rufo-tomentosum; ovula 9, uniseriata.

Tree, about 6 m. high, branchlets thick, compactly tomentose with dense dark red dendroid hairs; leaves with red-tomentose elongated stout petioles 3.5–5.5 cm. long, the petioles canaliculate; leaf blades subcoriaceous, elliptic or oblong-elliptic, 13–22.5 cm. long, 6.5–10 cm. wide, apex short acuminate, base acutish, glabrous early above, persistently fine tomentose beneath with appressed indument, bizonal, the costal zone with red dendroid hairs intermixed, costa and primary lateral nerves impressed above, conspicuous beneath, the primary lateral veins about 20 pairs; inflorescence terminal, openly pyramidal, tripinnately paniculate, up to 22 cm. wide, leafy at base, conspicuously red-tomentose, the hairs dendroid; flowers corymbose, finely red-tomentose, the buds at anthesis ovoid-ellipsoid, 5–6 mm. long; pedicels up to 5 mm. long; calyx black-punctate; sepals ovate-triangular, 1.5–2 mm. long, acute; petals linear-lanceolate, tapering from base to apex, 6 mm. long, black-punctate in lines, villous within except at base; stamens about 3.5 mm. long; anthers versatile, slender, linear-lanceolate, about 2 mm. long, conspicuously black-punctate entire length, including basal lobes; filaments flattened, about 2.4 mm. long, glabrous; ovary red-tomentose over entire surface; style glabrous, 5 mm. long, punctate with lines; ovules 9, uniseriate, the placenta depressed-globose.

Panama: Prov. Panama, beyond Goofy Lake along road to Cerro Jefe (Fort Clayton, Canal Zone), *Mireya D. Correa A. & R. L. Dressler 472* (MO, type), tree 15–20 ft. high, inflorescence brown, leaves brown beneath.

*P. amplifolia* is a remarkable species allied to *P. pyramidalis* Lundell

of Colombia. Both, with versatile anthers, are referable to Section I, Series 1 of my monograph. The coarser dark red dendroid indument, large subcoriaceous leaves with veins impressed above, and long petioles immediately are features by which the taxon may be readily recognized.

## SYMPLOCACEAE

**Symplocos blepharodes** Lundell, sp. nov. — Arbor parva, glabra; folia 7–15 mm. longe petiolata, glabra; lamina flavescentia, subchartacea, elliptica vel obovato-elliptica, 6–12 cm. longa, 3–5.5 cm. lata, apice subabrupte acuminata, acumine obtuso, basi acuta, integra; inflorescentia pauciflora, glabra, racemosa, usque ad 1 cm. longa; pedicelli subnulli; calyx glaber; lobi ca. 1.2 mm. longi, ciliati; corolla glabra, 6–7 mm. longa; stamina 5- vel 6-seriata, numerosa; stylus glaber; fructus glaber.

Tree, up to 15 m. tall, 20 cm. in diam., the branchlets slender, glabrous; leaf buds and leaves glabrous, the petioles shallowly canaliculate, 7–15 mm. long; leaf blades thin, subchartaceous, uniformly pale green or yellow-green on both surfaces, elliptic or obovate-elliptic, 6–12 cm. long, 3–5.5 cm. wide, apex subabruptly acuminate, the acumen usually obtusish, base acute, slightly decurrent, margin entire, midvein slightly impressed above, prominent beneath, the primary lateral veins slender, ascending at a sharp angle, 7–10 pairs with intermediaries; inflorescence axillary, racemose or subspicate, few-flowered, the rachis up to 1 cm. long, glabrous, the bracts essentially glabrous, conspicuously ciliate; flowers white, subsessile; calyx tube glabrous, the 5 lobes depressed ovate-orbicular, about 1.2 mm. long, ciliate and glandular, otherwise glabrous; corolla glabrous, 6–7 mm. long, the lobes elliptic, free marginally almost to base, the tube only about 1 mm. long, adhering medially to staminal tube, reflexed from about middle; stamens over 40, in 5 or 6 series, the filaments connate to within 1.5–2 mm. of apex, glabrous; style stout, glabrous, about 5 mm. long, the stigma capitate, lobate; ovary pubescent apically, the young fruits glabrous, 4-celled.

Guatemala: Dept. Izabal, Puerto Mendez, in *zapotal* on top of hill, Sept. 7, 1969, *Elias Contreras 9092* (LL, type), tree, 45 ft. high, 8 in. diam., flowers white; also, *Contreras 9089* (LL) from the same locality.

This new taxon appears to have affinity to *S. flavifolia* Lundell and *S. Molinae* L. Wms., both montane species. *S. blepharodes* differs at once in having much smaller flowers, and glabrous branchlets and inflorescences.

VOLUME 4 MARCH, 1971 NUMBER 5

# WRIGHTIA

A BOTANICAL JOURNAL

CONTENTS

Studies of American Plants – III.
By Cyrus Longworth Lundell ..... 153

PUBLISHED BY
TEXAS RESEARCH FOUNDATION
RENNER, TEXAS

APR 4 1971

# WRIGHTIA

WRIGHTIA, a botanical journal, is a publication of Texas Research Foundation. The contributions are by staff members and collaborators. Each volume will contain a series of numbers. The numbers will be issued at irregular intervals over a period of several years.

VOLUME 4, NUMBER 5
ISSUED MARCH 31, 1971

Printed in the U.S.A.
Etheridge Printing Company
Dallas, Texas

WRIGHTIA

VOLUME 4 MARCH, 1971 NUMBER 5

# STUDIES OF AMERICAN PLANTS – III

CYRUS LONGWORTH LUNDELL

The Myrsinaceae of Panama have an exceptionally high degree of endemism, and it is obvious that further exploration will increase the representation of this family. Most of the species from Panama are poorly known, and based on inadequate material. Much additional collecting needs to be done to determine the variation in populations in order to better evaluate the taxa. With completion of the treatment of the family for the *Flora of Panama,* eleven additional new species are described in the genera *Ardisia, Parathesis* and *Rapanea. Ardisia spectabilis* Standl. is transferred to *Weigeltia,* the second species of that genus known from Panama.

In July, 1970 I visited Paris to study types of Myrsinaceae, and I am deeply indebted to Dr. Alicia Lourteig for making available the material in Herbier Humboldt & Bonpland, and for the loan of other historic material needed to clarify problems in this family. A study of the type material of *Ardisia compressa* Kunth reveals that this species may be only a local endemic from the vicinity of Caripe, Venezuela, and that the use of this name for extensive populations in Mexico, Central America and the West Indies is perhaps ill advised. Much study remains to be done with species of this affinity. Since the original description by Kunth is inadequate, I have redescribed the species from the type at Paris.

In resuming studies of the American Celastraceae, the genus *Tricerma* Liebm. is recognized. Seven species, forming a natural group ranging over the Western Hemisphere from Florida and Texas to Argentina and into the West Indies, are transferred to *Tricerma.*

The types of two species of *Euonymus,* described by Bentham from Mexico, were examined at Kew, and they are reconsidered and their descriptions amplified. *E. acuminatus* Benth., 1840, not Raf. 1836, is renamed *E. Benthamii* Lundell.

All the other taxa described or otherwise noted in *Studies of American Plants – III,* including *Izabalaea,* a unique new genus in the Nyctaginaceae, are based on collections from British Honduras and Guatemala. All specimens are in the Lundell Herbarium.

## NYCTAGINACEAE

**Izabalaea,** gen. nov. – Arbor excelsa; folia alternata, petiolata, ampla, integerrima, glaberrima; flores unisexuales; inflorescentia mascula racemosa, axillaris, glabra, novella bracteata; bracteae peltatae vel sub-

peltatae, ciliolatae, deciduae; flores 4- vel 5-meri, glabri, subfasciculati, pedicellati; perianthium subcampanulatum, ca. 3 mm. longum, inferum, herbaceum; tubus brevis; limbus 4- vel 5-lobus, lobis valvatis, linearis, acutiusculis; stamina 4 vel 5, exserta, filamentis filiformibus, ca. 4 mm. longis; antherae elliptico-didymae, utrinque emarginatae; staminodia 4 vel 5, crassa, apice minute lobata; ovarium abortivum; flores pistillati ignoti.

Known only from staminate material, the position of this tree has long remained a riddle to me. I tentatively place it in the Pisonieae, although the leaves are strictly alternate. The flowers are in sessile fleshy racemes, but the racemes may well represent reduced cymes for the pedicels, sometimes solitary, are usually fasciculate along the rachis of the raceme, with each fascicle covered in bud by an overlapping peltate or subpeltate deciduous bract. The peculiar thick staminodia, irregularly and shallowly lobed at apex, may be glanduliferous. The abortive subclavate pistil has a minute terminal stigma.

**Izabalaea excelsa** Lundell, sp. nov. — Arbor, ca. 50 m. alta, ramulis minutissime papillatis; folia glabra, petiolata, petiolo 1–4 mm. longo; lamina subchartacea, oblonga, lanceolato-oblonga vel oblanceolato-oblonga, 7.5–12.5 cm. longa, 2.4–4.5 cm. lata, apice obtuso-rotundata, basi acuta, integra; inflorescentia racemosa, axillaris, novella bracteata; bracteae peltatae vel subpeltatae, ciliolatae, deciduae; flores dioeci; masculi apetali, 4- vel 5-meri, subfasciculati; pedicelli usque ad 2.5 mm. longi; perianthium ca. 3 mm. longum; lobi valvati, lineari; filamenta ca. 4 mm. longa; staminodia crassa, ca. 1.5 mm. longa; antherae ellipticae, ca. 0.5 mm. longae.

Giant dioecious tree, about 50 m. high, 1 m. diam., the branchlets rather slender, very minutely papillate at first; leaves alternate, without stipules, glabrous, petiolate, the petioles marginate, 1–4 mm. long, very minutely papillate; leaf blades thin, subchartaceous, concolorous, drying yellow-green, oblong, lanceolate-oblong or oblanceolate-oblong, 7.5–12.5 cm. long, 2.4–4.5 cm. wide, apex obtuse-rounded, base acute, decurrent on petiole, margin entire, costa nearly plane above, prominent and elevated beneath, the primary lateral veins 6 or 7 pairs, very slender and inconspicuous; inflorescences racemose, axillary and at defoliated nodes, bracteate in bud; bracts depressed-orbicular, peltate or subpeltate, ciliolate, tightly overlapping and closely enveloping the flower buds, deciduous early; flowers unisexual, the staminate apetalous, 4- or 5-parted, 1 to 4 at each node of the sessile raceme, the racemes 1–3.5 cm. long, glabrous; pedicels up to 2.5 mm. long; perianth about 3 mm. long, the lobes valvate, reflexed at anthesis, linear, beaked and acutish; stamens 4 or 5, opposite the perianth lobes, exserted; filaments slender, about 4 mm. long, tapering to a filiform apex, attached at base of perianth lobe, alternating with staminodia; staminodia rather thick, about 1.5 mm.

long, irregularly and shallowly lobed at apex; anthers versatile, elliptic, about 0.5 mm. long, emarginate at apex and base, 2-celled, longitudinally dehiscent; pistil abortive, the vestige slender, slightly clavate, about 2 mm. long, the stigma terminal.

Guatemala: Dept. Izabal, Cadenas, in high forest bordering Rio Sarstun, 4 km., March 19, 1962, *Elias Contreras 6791* (LL, type), tree, 150 ft. high, 35 in. diam., flowers golden-yellow.

The leaves in texture resemble those of *Schoepfia Schreberi* Gmel.

**Pisonia Proctori** Lundell, sp. nov. – Frutex scandens, ramulis crassiusculis, glabratis; folia petiolata, petiolo 7–20 mm. longo; lamina subchartacea, ovato-elliptica, late elliptica vel obovata, 7–15 cm. longa, 5–8.5 cm. lata, apice subabrupte acuminata, basi acuta, subtus parce villosa; inflorescentia feminea paniculata, 10–12 cm. longa, laxa, longe pedunculata, pedunculo usque ad 4 cm. longo, hirsuto-tomentoso; anthocarpium longe pedicellatum, anguste clavatum, usque ad 1.4 cm. longum, stipitato-glandulosum.

Unarmed woody vine, the branches laxly pendent from trees of high forest, probably short villous-tomentose on young growth, glabrate early, the leaf buds at nodes densely villous-tomentose with short rather stiff very pale hairs; leaves with slender petioles 7–20 mm. long, the petioles shallowly canaliculate and villous with short hairs of varying length; leaf blades subchartaceous, drying blackish, ovate-elliptic, broadly elliptic or obovate, 7–15 cm. long, 5–8.5 cm. wide, apex subabruptly short acuminate, base acute, margin subentire, glabrous above except along the midvein, rather sparsely villous beneath with short hairs, the hairs densest along veins, costa slender and slightly elevated above, more prominent beneath, the primary lateral veins 7–9 pairs, slender, widely ascending; inflorescences (young fruit) laxly paniculate, 10–12 cm. long, with peduncles up to 4 cm. long, the peduncles short hirsute-tomentose with pale hairs, the secondary branches slender, blackish, short villous pubescent, glabrate; pedicels of young fruits slender, up to 2 cm. long, usually bibracteate at base of fruits and with another small bractlet below on pedicel, the bractlets slender and less than 1 mm. long; anthocarp (immature) slender, clavate, up to 1.4 cm. long, finely pubescent at first, the stipitate glands in single rows.

British Honduras: El Cayo District, Chiquibul Forest Reserve, 1.5 miles southeast of Round Hole Bank, in moist high forest, ca. 1700 ft., April 25, 1969, *George R. Proctor 30072* (LL, type), high-climbing unarmed woody vine with laxly pendent branches.

Related to *P. petenensis* Lundell, it differs in being unarmed and in having altogether different indument. The leaves in *P. Proctori* are larger and wider with more numerous primary lateral veins.

## ANNONACEAE

**Anaxagorea guatemalensis** Standl., Trop. Woods 7: 4. 1926; Fries, Acta Horti Berg. 12: 26, *fig. 2, f–g.* 1934.

Guatemala: Dept. Peten, Los Arcos, km. 163 of Cadenas Road, in high forest bordering a small river, Dec. 12, 1969, *Elias Contreras 9338* (LL), small tree, 20 ft. high, 3 in. diam.

Described from Izabal *(S. J. Record 21)*, this is the second collection of the northernmost species of the genus.

## LAURACEAE

**Licaria areolata** Lundell, sp. nov. — Arbor parva, ramulis crassiusculis, glabratis; folia coriacea, glabra, petiolata, petiolo crasso, 1–3 cm. longo; lamina lanceolata vel oblongo-elliptica, 10–27 cm. longa, 6–9 cm. lata, basi acuta, apice obtusa vel acutiuscula, subtus areolata; inflorescentia axillaris, paniculata, parva, dense puberula; flores puberuli, parvi; pedicelli 1–3.5 mm. longi; tepala late ovata, crassa; stamina 3, libera; staminodia 9; ovarium glabrum.

Tree, about 13 m. high, 15 cm. in diam., branchlets drying blackish, lenticellate, sparsely puberulent at first, essentially glabrous; leaves with blackish petioles, the petioles shallowly canaliculate, puberulent at base above, otherwise glabrous, 1–3 cm. long; leaf blades coriaceous, glabrous, lanceolate or oblong-elliptic, 10–27 cm. long, (3.5) 6–9 cm. wide, base acute, apex narrowed and obtuse or acutish, the midvein stout, rounded and conspicuous on both surfaces, the primary lateral nerves slender, 11–15 pairs, the veins reticulate, areolate beneath; inflorescences small, axillary, paniculate, pedunculate, 3–6 cm. long in flower, densely puberulent; flowers puberulent, pedicellate, the pedicels 1–3.5 mm. long; perianth with distinct puberulent tube, about 2.5 mm. long, almost as thick; the three outer tepals thick, incurved apically, broadly ovate, 0.8–1 mm. long, acutish, the three inner tepals smaller, enclosed; staminodia of series I thick, subequaling tepals, with abortive apical anther cells; staminodia of series II smaller, narrowed below; stamens of series III included, thick, only slightly narrowed below, not adnate, the cells apical, the pores minute; staminodia of series IV stipitiform; ovary glabrous, ovoid, the style slender.

Guatemala: Dept. Izabal, Cadenas, in high forest bordering Rio Dulce Road, 4.5 km., *Elias Contreras 10108* (LL, type), tree, 40 ft. high, 6 in. diam., flowers yellowish.

Collections in immature fruit from the same general locality, *Contreras 8996* (LL), *9086* (LL), and *9249* (LL) were identified and distributed as *L. alata* Miranda, and *L. areolata* closely resembles that species. The small axillary panicles, puberulent perianth, conspicuous staminodia, and free stamens mark *L. areolata* as clearly distinct. The urceolate cupule of the immature fruit is double margined, and both margins are thin.

**Licaria tikalana** (Lundell) Lundell, comb. nov. *Misanteca tikalana* Lundell, Wrightia 4: 101. 1969.

**Ocotea euvenosa** Lundell, nom. nov. *Ocotea venosa* Lundell, Phytologia 12: 245. 1965, not *O. venosa* Gleason, 1931.

## CELASTRACEAE

**Euonymus Benthamii** Lundell, nom. nov. *Euonymus acuminatus* Benth., Pl. Hartw. 59. 1840, not Raf. 1836.

Shrub, 6–10 ft. high, the branchlets glabrous, grooved below the flattened nodes, rounded; leaves glabrous, petiolate, the petioles canaliculate, 3–5 mm. long; leaf blades thin, membranaceous, lanceolate or elliptic-lanceolate, 4–9 cm. long, 1.5–3.2 cm. wide, apex acuminate, the acumen obtusish, base acutish, margin crenulate or subserrulate, costa slender, rounded and elevated above, broader and more conspicuous beneath, primary lateral veins very slender, usually six pairs; cymes glabrous, 3–5-flowered; peduncles slender, 3.5–6 cm. long; pedicels slender, 8–12 mm. long; flowers 4-parted, up to 12 mm. wide; sepals broadly rounded, 3 mm. wide, about 1.5 mm. long, margin minutely erose; petals asymmetrical, depressed orbicular, widest above the middle, about 5 mm. wide, 4.5 mm. long, narrowed at base, the margin irregular and erose or short fimbriate; disk fleshy, annular, about 3 mm. in diameter, conspicuously 4-lobed; stamens borne near edge of disk; filaments thick, about 0.4 mm. long; anther cells divergent, the anthers about 1 mm. wide; ovary tuberculate, surrounded by disk, 4-celled, with 1 or 2 ovules in each cell; style very short, conical.

Mexico: Oaxaca, Llano Verde, 1839, *T. Hartweg 452* (K, type).

Since the original description is so brief, the species has been redescribed from the type at Kew. *E. Benthamii* is closely related to *E. cnantiophyllus* (Donn. Sm.) Lundell, and additional collections from Oaxaca are needed to better delimit the two taxa. *E. corymbosus* Sprague & Bullock, *E. costaricensis* Standl., and *E. chiapensis* Lundell have much smaller flowers. All Mexican and Central American species have either tuberculate, verrucose or rugose fruits, these characteristics most evident in immature stages of growth. The mature capsules are nearly smooth in *E. cnantiophyllus*.

**Euonymus mexicanus** Benth., Pl. Hartw. 36. 1840.

Shrub, the branchlets glabrous, conspicuously 4-costate; stipules linear-lanceolate, up to 2.5 mm. long, with fimbriate-erose margin; leaves glabrous, small, short petiolate, the petioles 3–4 mm. long, canaliculate, costate; leaf blades chartaceous, lanceolate, 2.8–5.5 cm. long, 0.8–1.4 cm. wide, apex acuminate, the acumen usually obtusish, base acute, margin shallowly crenulate or crenulate-serrulate, concolorous, the costa elevated above and rounded, less conspicuous beneath; cymes usually solitary, 1–3-flowered, glabrous; peduncles slender, up to 1.3 cm. long, the pedicels about 4 mm.

long; flowers 4-parted; sepals depressed-orbicular, about 2 mm. wide, rounded; petals suborbicular, about 3 mm. long, about 3 mm. wide, with wide claw at base, the margin erose or very short fimbriate; disk fleshy, annular, 2–2.5 mm. wide, 4-lobed; stamens 4, borne on disk margin; filaments stout, up to 0.4 mm. long; anther cells small, spreading; ovary tuberculate, 4-celled, with 2 ovules in each cell; style short.

Mexico: Hidalgo, mountains near Huasca, 1839, *T. Hartweg 279* (K, type); vicinity of Huasca, Nov. 11, 1936, *M. Martinez s.n.* (K); between Guerrero and Omitlan, May 15, 1950, *Martinez E. 100* (LL), shrub, 2.5 m. tall; between Guerrero and Omitlan, July 20, 1950, *Martinez s.n.* (LL), shrub, 2 m. high, flowers greenish-white.

Since Bentham's description is so brief, an amplified description, based chiefly on the type at Kew, is provided herewith. *Martinez s.n.*, collected July 20, 1950, is in fruit. The ripe capsules are subglobose, about 9 mm. in diameter, conspicuously tuberculate.

**Tricerma** Liebm., Kjoeb. Vid. Medd. 97. 1853.

The genus *Tricerma* represents a small natural group of species usually included in *Maytenus*. The peculiar thick fleshy leaves, spirally arranged, and the 3-celled ovary with one ovule in each cell, and the 3-valved capsules are characteristics which distinguish the genus.

It ranges from Texas and Florida to Argentina.

Type species: *Tricerma crassifolium* Liebm.

**Tricerma obovatum** (Hook.f.) Lundell, comb. nov. *Maytenus obovatus* Hook.f., Trans. Linn. Soc. 20: 230. 1847.

Svenson has reduced this species to synonymy under *Maytenus octogona* (L'Her.) DC. in Am. Jour. Bot. 22: 241. 1935. I have examined the type at Kew, and the taxon needs further study to determine its status.

**Tricerma octogonum** (L'Her.) Lundell, comb. nov. *Celastrus octogonus* L'Her., Sert. Anglicum 5. 1788.

In the L'Heritier volume in the Lundell Rare Book Library at Renner the species is described on page 5. In literature references, page 7 is cited erroneously.

**Tricerma orbiculare** (Willd.) Lundell, comb. nov. *Celastrus orbicularis* Willd. ex Roem. & Schult., Syst. 5: 423. 1819. *Maytenus orbicularis* (Willd.) Loes., Engl. Bot. Jahrb. 50 (Beibl. 111): 10. 1913.

**Tricerma phyllanthoides** (Benth.) Lundell, comb. nov. *Maytenus phyllanthoides* Benth., Bot. Voy. Sulph. 54. 1844.

The type of the genus, *Tricerma crassifolium* Liebm., appears to be a synonym. I have studied a collection at Kew cited in the original description.

**Tricerma texanum** (Lundell) Lundell, comb. nov. *Maytenus texana* Lundell, Phytologia 1: 306. 1939.

**Tricerma viscifolium** (Griseb.) Lundell, comb. nov. *Maytenus viscifolia* Griseb., Goett. Abh. 19: 110. 1874; Lourteig & O'Donell, Natura 1: 193. 1955.

**Tricerma Vitis-idaeum** (Griseb.) Lundell, comb. nov. *Maytenus Vitis–idaea* Griseb., Goett. Abh. 19: 110. 1874; Lourteig & O'Donell, Natura 1: 196. 1955.

Lourteig and O'Donell in keying out the two species in their 1955 treatment of *Las Celastraceas de Argentina Y Chile* (Natura 1: 181–233. 1955) point out the distinguishing characteristics, which I consider of generic importance, in their key on page 187.

## MYRTACEAE

**Pimenta guatemalensis** (Lundell) Lundell, comb. nov. *Myrcia guatemalensis* Lundell, Wrightia 4: 42. 1968.

Guatemala: Dept. Izabal, Puerto Mendez, in low forest on top of hill, Oct. 6, 1969, *Elias Contreras 9260* (LL), shrub, fruit dark red; leaves smell like peppermint, sweet.

With fruiting material available, this species is transferred to the genus *Pimenta* on the basis of its myrcioid inflorescence and pimentoid embryo. The flowers are 5-parted which would place it in *Amomis* in accord with the treatments of some authorities. The unisexual staminate flowers are unique, and ultimate disposition of the species must await the collection of pistillate material.

The fruits dissected are 1-seeded and unilocular, and no trace has been found of additional ovules. The seeds, borne apically, are up to 7.5 mm. long, with seed coat smooth, shiny and membranous. The thick embryo, uncinate-curved or subreniform, has a glandular-verrucose surface. The elongate radicle, about 3 mm. long, 1 mm. in diameter, is incurved against the body of the embryo. It bears at apex two slender linear accumbent cotyledons about 1.2 mm. long. The small cotyledons are folded back under the apex of the radicle. The hypocotyl is long and simple extending from apex of radicle to extremity of embryo.

## MYRSINACEAE

**Ardisia Alstonii** Lundell, sp. nov. – Frutex vel arbor parva; ramuli graciles, novelli minute lepidoti; folia petiolata, petiolo 3–7 mm. longo, marginato; lamina membranacea vel subchartacea, oblanceolata vel anguste elliptico-oblonga, 5–12 cm. longa, 2–3.8 cm. lata, apice subabrupte acuminata, basi acutiuscula, minute crenulata vel subintegra, subtus parce lepidota; inflorescentia axillaris et terminalis, parva, furfuraceo-lepidota, paniculata; flores 5- vel raro 4-meri, subcorymbosi; pedicelli

4–7 (10) mm. longi; sepala ovata vel oblongo-ovata, 1–1.3 mm. longa, apice rotundata, minute erosa, minute et dense aurantiaco-punctata; petala oblonga, ca. 5 mm. longa, aurantiaco-punctata, asymmetrica; stamina ca. 4 mm. longa; filamenta ca. 1.5 mm. longa; antherae 2.5–2.7 mm. longae, apiculatae; ovarium glabrum, stylo 5 mm. longo; ovula 20–23, pluriseriata.

Shrubs or small trees, the branchlets slender, finely lepidote with appressed scales; leaves petiolate, the petioles rather slender, canaliculate, narrowly marginate, 3–7 mm. long, lepidote on lower surface; leaf blades thin, membranaceous or subchartaceous, oblanceolate, obovate or narrowly elliptic-oblong, 5–12 cm. long, 2–5 cm. wide, apex subabruptly acuminate, the acumen acutish, base acutish, decurrent, margin finely crenulate to essentially entire, lepidote at first on lower surface, the midvein elevated beneath, the primary lateral veins very slender, 12–17 pairs; inflorescences small, axillary and terminal, finely furfuraceous-lepidote, pinnately paniculate, up to 8 cm. long, the axillary shorter; flowers 5-parted, rarely 4-parted, subcorymbose, the pedicels slender, 4–7 (10) mm. long, apparently accrescent; sepals ovate or oblong-ovate, 1–1.3 mm. long, usually rounded at apex, minutely erose, densely punctate with small mostly rounded orange glands, the margin hyaline; petals oblong, about 5 mm. long, united at base about 1 mm., asymmetrical and notched apically, punctate with orange glands, these mostly small and scattered; stamens about 4 mm. long, attached in corolla tube; filaments slender, 1.5–2 mm. long; anthers lanceolate-linear, 2.5–3 mm. long, dehiscent by apical pores, apiculate, concolorous; ovary ovoid, smooth, the slender style 5 mm. long; ovules 20–25, pluriseriate.

Panama: Cocle, north rim of El Valle, June 4, 1939, *A. H. G. Alston & P. H. Allen 1852* (LL, type; MO, US, isotypes), small tree 3 m., flowers salmon pink.

Apparently a local endemic of affinity to *A. guianensis* (Aubl.) Mez from which it differs in its small mostly narrow oblanceolate leaves, densely orange-punctate sepals, and placenta with 20 to 25 ovules.

**Ardisia compressa** Kunth, Nov. Gen. & Sp. 3: 245. 1818.

Branchlets rather slender, furfuraceous-lepidote with brown scales up to .02 mm. in diameter, the scales with impressed center and fimbriate-erose margins, the scales at first completely covering the stem surface, glabrate at length, the stems drying rather angulate toward base of the terminal inflorescence; leaves thin, subchartaceous, nearly membranaceous, glabrous on upper surface, the lower surface furfuraceous-lepidote with appressed scales like those of stems, the scales probably cover entire surface at first, thinner to sparse as leaf matures; petioles rather thick, broadly marginate, the marginate edge up to 1 mm. wide at base, the petioles 3–5 mm. long from revolute leaf base; leaf blades obovate-elliptic or obovate, 8.5–12.5 cm. long, 3.5–5.5 cm. wide, apex short and

subabruptly short acuminate, the acumen obtusish, base narrowed and acutish, decurrent on the broadly marginate petiole, the leaf margin subentire, inconspicuously subcrenulate, the midvein elevated beneath, appressed furfuraceous-lepidote to base of petiole, glabrate as leaf matures, the primary lateral nerves slender, wide angled, 15–19 pairs with finer 1, 2 or 3 intermediaries between each, anastomosing into rather obscure marginal vein 1.5–3 mm. from margin; inflorescences terminal, bipinnately paniculate, 4–5.5 cm. long, about 5 cm. wide at base, sessile or nearly so, furfuraceous-lepidote like the stems, sparingly lepidote above; pedicels straight, slender, stiff, 4–5.5 mm. long, lepidote with a few small scattered scales; flowers subumbellate, regularly 5-parted, rarely 4-parted; flower buds narrowly oblong-elliptic, about 6.2 mm. long, including calyx and corolla, 2.5 mm. diam. at middle; sepals sparsely lepidote, ovate, 1.2–1.4 mm. long, fully as wide at base, the apex rounded, minutely erose, punctate with small elevated orange glands, these rounded to oblongish, largest medially, the smaller glands peripheral, the margin widely hyaline; corolla 6 mm. long; petals united at base about 1 mm., elliptic-oblong, about 6 mm. long, 2.5 mm. wide at middle, apex asymmetrical, obtuse laterally, sparingly punctate, with slender elongated glands in 2 or 3 series medially, these few, linear and about 1 mm. long, terminal fourth of petal with scattered small rounded orange glands, the petals revolute at anthesis, glabrous; stamens 4.3–5 mm. long; filaments attached to corolla tube about 0.6 mm. from base, the filaments slender, up to 1.7 mm. long, expanded slightly at base, glabrous; anthers linear-oblong, 3.3–4 mm. long, slightly wider at base, about 0.9 mm. wide at base, tapering from base to apex, the basal lobes about 0.3 mm. long, concolorous, no glands evident, drying dark and opaque, dehiscent by two small apical pores, the apex narrow and subtruncate, obscurely apiculate; ovary ovoid, small, glandular-punctate; style slender, 4.5–5.3 mm. long; placenta ovoid; ovules 13–15, in several series, rather large, obovoid, about 0.2 mm. long; young fruits subglobose, densely punctate.

Venezuela: Caripe, *Herbier Humboldt & Bonpland 165* and *185* (P, type).

In the packet on *Humboldt & Bonpland 165* (P), there is a folded label containing flowers and young fruiting material, the folded label bearing the number *185* from Caripe. This flowering material appears to have been dissected, and the diagnosis by Kunth probably was based on it.

**Ardisia nigrita** Lundell, sp. nov. — Frutex, ramulis gracilibus, minute lepidotis; folia petiolata, petiolo 7–10 mm. longo, canaliculato; lamina glabra, chartacea, elliptica, 6.5–10 cm. longa, 3–4 cm. lata, apice obtusa vel subacuminata, acumine obtuso, basi acuta, novella punctata; inflorescentia glabra, terminalis, paniculata; flores 5-meri, racemosi; pedicelli 10–13 mm. longi; sepala late ovata, ca. 2 mm. longa, nigro-punctata, novella ciliolata; fructus subglobosus.

Shrubs, the branchlets slender, subterete, minutely lepidote at first, the indument reddish; leaves petiolate, the petioles slender, 7–10 mm. long, canaliculate; leaf blades glabrous, chartaceous, elliptic, 6.5–10 cm. long, 3–4 cm. wide, apex obtuse or subacuminate, the acumen obtuse, base acute, slightly decurrent, conspicuously punctate at first, the margin entire, the midvein nearly plane above, conspicuous beneath, the veins very slender and inconspicuous; inflorescences glabrous, terminal, ample, paniculate, open, pyramidal, up to 11 cm. long, 15 cm. wide at base, the rachis and branches black-punctate; flowers 5-parted, racemose, the pedicels rather remote, slender, mostly recurved, 10–13 mm. long; sepals broadly ovate or suborbicular, ca. 2 mm. long, rounded at apex, thick with hyaline margin, ciliolate at first, densely black-punctate with large glands; fruits immature, subglobose, yellow, about 6 mm. in diam., black-punctate with large glands.

Panama: Panama, Cerro Jefe, roadside thicket, alt. ca. 2900 ft., Aug. 20, 1967, *J. D. Dwyer & S. M. V. Hayden 8092* (LL, type), shrub to 8 ft., fruits yellow.

Its affinity appears to be with *A. colombiana* Lundell.

**Ardisia obovalifolia** Lundell, sp. nov. — Frutex vel arbor parva, ramulis gracilibus, lepidotis; folia subsessilia vel petiolata, petiolo usque ad 4 mm. longo, marginato; lamina subcoriacea, obovata vel elliptico-obovata, 3–6.5 cm. longa, 2–4.5 cm. lata, apice rotundata et abrupte acuminata, basi rotundata, supra glabra, subtus glabrata; inflorescentia terminalis, tripinnatim paniculata, novella lepidota; flores umbellati vel subcorymbosi, 5-meri; pedicelli 3–6 mm. longi; sepala late ovata, 2 mm. longa, apice rotundata; corolla minute punctata; ovarium glabrum; stylus 5 mm. longus; ovula numerosa, pluriseriata; fructus subglobosus.

Shrubs or small trees up to 8 m. high, the branchlets slender, appressed lepidote at first, glabrate early; leaves small, drying blackish, petiolate or subsessile, the petioles marginate, up to 4 mm. long, lepidote at first; leaf blades subcoriaceous, obovate or elliptic-obovate, 3–6.5 cm. long, 2–4.5 cm. wide, apex rounded and abruptly short acuminate, the acumen acutish, base rounded and decurrent, glabrous above and often shiny, paler and glabrate beneath, conspicuously punctate, the glands especially prominent in young leaves, the midvein plane above, prominent beneath, the lateral veins very slender, obscurely reticulate; inflorescences terminal, small, tripinnately paniculate, pyramidal, 4–9 cm. long, lepidote at first, glabrate; flowers umbellate or subcorymbose, 5-parted, the pedicels rigid, 3–6 mm. long; sepals broadly ovate, 2 mm. long, rounded at apex, punctate with rounded small glands, these orange and black, minutely erose; petals (in bud) conspicuously punctate mostly with small rounded glands; stamens (in bud) 3 mm. long, with short filaments; ovary glabrous, the slender style 5 mm. long, recurved after anthesis; ovules small, numerous, pluriseriate; fruits depressed-globose.

Panama: Panama, Cerro Jefe, summit, elev. 2900 ft., March 12, 1967, *J. D. Dwyer, G. Gauger & K. Baker 7281* (LL, type), tree 25 ft. tall; Cerro Jefe, roadside thicket, Aug. 20, 1967, *J. D. Dwyer & S. M. V. Hayden 8078* (LL), shrub to 8 ft., fruits dull yellow; Cerro Jefe, Jan. 21, 1967, *J. A. Duke 9423* (LL, MO), shrub or small tree, flowers pinkish.

Superficially *A. obovalifolia* resembles *A. gorgonae* Cuatr., but the latter is a seashore plant with elliptic leaves and sepals scarcely half as large.

**Ardisia perinsignis** Lundell, sp. nov. — Arbor glabra, ramulis percrassis; folia petiolata, petiolo crasso, marginato, usque ad 1.5 cm. longo; lamina coriacea, pallida, anguste oblonga vel oblongo-oblanceolata, usque ad 32 cm. longa, 6.5–9 cm. lata, apice subacuminata, basi subcuneata, integra, novella punctata; inflorescentia terminalis, ample bipinnatim paniculata, glabra; flores 5-meri, spicati, pedicellis nullis; sepala libera, ovata, 6 mm. longa, nigro-punctata, ciliolata, intus glandulosa; corolla ca. 1.3 cm. longa, petala basi coalita ca. 2.5 mm., lineari-oblonga, ca. 3 mm. lata, migro-punctata, intus glandulosa; stamina ca. 9 mm. longa; filamenta basi glandulosa; antherae ca. 5.5 mm. longae, acutae; ovarium glabrum; ovula numerosa, pluriseriata.

Trees, up to 10 m. high, the branchlets thick, drying about 9 mm. in diameter at base of inflorescence, glabrous, terete; leaves large, glabrous, short petiolate, the petioles thick, marginate, up to 1.5 cm. long; leaf blades coriaceous, pallid, narrowly oblong or oblong-oblanceolate, up to 32 cm. long, 6.5–9 cm. wide, apex subacuminate, base subcuneate, decurrent on the petiole, margin entire, revolute, conspicuously punctate at first, the midvein depressed above, thick and elevated beneath, the lateral veins numerous, very slender, arcuately ascending; inflorescences terminal, equaling the leaves, bipinnately paniculate, the peduncle and rachis thick, the basal branches up to 20 cm. long, glabrous; flowers 5-parted, spicate, sessile, each subtended in bud by a black-punctate ovate cucullate bract longer than the calyx; sepals free to base, imbricate, ovate, 6 mm. long, symmetrical, rounded at apex, minutely ciliolate, conspicuously black-punctate, glandular within; corolla about 1.3 cm. long, the petals united at base about 2.5 mm., linear-oblong, about 3 mm. wide, emarginate and asymmetrical at apex, densely punctate with black glands, glabrous dorsally, glandular within at base; stamens about 9 mm. long; filaments inserted in corolla tube, united at base, about 3.5 mm. long, glandular-papillose below, black-punctate; anthers thick, sagittate-lanceolate, about 5.5 mm. long, acute, concolorous, not punctate, dehiscent at first by small apical pores; ovary ovoid, punctate; style slender, about 1 cm. long; ovules numerous, pluriseriate.

Panama: Darien, about 10 miles S of El Real, on Rio Pirre, Aug. 10-11, 1962, *J. A. Duke 5483* (LL, type), tree to 30 ft., flowers white.

**Ardisia picturata** Lundell, sp. nov. — Frutex; ramuli gracillimi, glabri; folia glabra, petiolata, petiolo marginato, 5–7 mm. longo; lamina picturata, membranacea, elliptica vel obovato-elliptica, 4.5–8.5 cm. longa, (1.6) 2–4 cm. lata, apice subabrupte acuminata, basi acuta, integra vel subintegra; inflorescentia terminalis, bipinnatim paniculata, glabra, usque ad 7 cm. longa; flores subcorymbosi; pedicelli fructiferi 1.2–1.9 cm. longi; sepala 5, membranacea, libera, elliptica, 6–8 mm. longa, 3–4.5 mm. lata, apice rotundata, intus papillata; fructus globosus, punctatus.

Shrub, about 2 m. high, glabrous, the branchlets slender; leaves petiolate, the petioles slender, inconspicuously marginate, 5–7 mm. long; leaf blades thin, membranaceous, picturate on both surfaces with conpicuous elongated black glands, elliptic or obovate-elliptic, 4.5–8.5 cm. long, (1.6) 2–4 cm. wide, apex subabruptly acuminate, base acute, margin entire or obscurely crenulate, midvein shallowly impressed above and with narrow medial ridge, conspicuous beneath, the primary lateral veins slender, 9 or 10 pairs, inconspicuous, the reticulation obscure; inflorescence terminal, bipinnately paniculate, branched openly to base, up to 7 cm. long in fruit; flowers subcorymbose, appearing umbellate; pedicels of immature fruits slender, 1.2–1.9 cm. long; sepals 5, thin, free almost to base, elliptic, 6–8 mm. long, 3–4.5 mm. wide, rounded at apex, papillate within below middle, conspicuously black-punctate in lines, the three medial darkest; young fruits globose, black-punctate; style slender.

Panama: Panama, Cerro Campana area, alt. ca. 3000 ft., above Su Lin Motel, dense woodland bordering roadside, Aug. 11, 1967, *J. D. Dwyer & J. H. Kirkbridge, Jr. 7818* (LL, type; MO, isotype), shrub to 7 ft., sepals lilac, fruits glistening white.

Referable to the subgenus Graphardisia Mez, *A picturata* is related to *A. opegrapha* Oerst., differing in its small thin picturate leaves.

**Ardisia reflexiflora** Lundell, sp. nov. — Arbor; ramuli graciles, novelli minute lepidoti; folia parce lepidota, petiolata, petiolo marginato, 3–6 mm. longo; lamina subchartacea, elliptica vel raro obovato-elliptica, 5–9.5 cm. longa, 2.2–4.7 cm. lata, apice subabrupte acuminata, acumine obtusiusculo, basi rotundata vel acutiuscula; inflorescentia terminalis, paniculata, parce lepidota; flores 5-meri, umbellati; pedicelli graciles, 3–5 mm. longi; sepala late ovata, 1 mm. longa, rotundata; corolla ca. 4.5 mm. longa, reflexa; stamina 5 mm. longa; antherae crassae, lanceolatae vel lanceolato–ellipticae, 2–2.4 mm. longae, apice subtruncatae; ovarium glabrum, stylo 4 mm. longo; ovula numerosa, pluriseriata.

Tree, branchlets slender, sparsely and minutely lepidote at first, glabrate; leaves sparsely lepidote at first, petiolate, the petioles marginate to base, 3–6 mm. long; leaf blades subchartaceous, drying black-brown, elliptic or rarely obovate-elliptic, 5–9.5 cm. long, 2.2–4.7 cm. wide, apex subabruptly acuminate, the acumen obtusish, base rounded or acutish, decurrent, costa slightly impressed above, elevated beneath, the primary

lateral veins very slender, scarcely discernible on upper surface; inflorescences terminal, paniculate, 5.5–9 cm. long, up to 6 cm. wide at base, minutely and sparsely lepidote; flowers 5-parted, umbellate, the pedicels slender, 3–5 mm. long; buds elliptic, ca. 4.7 mm. long; sepals broadly ovate, 1 mm. long, rounded, punctate with a few rounded glands; corolla ca. 4.5 mm. long, persistent and reflexed in fruit, the petals united ca. 1 mm. at base, elliptic, with a few small round apical glands, and a few linear glands medially, the apex obtuse-rounded, symmetrical; stamens 5 mm. long; filaments slender, attached to base of tube, ca. 2.5 mm. long; anthers rather thick, lanceolate or lanceolate-elliptic, 2–2.4 mm. long, concolorous, dehiscent by apical pores, the apex subtruncate; ovary globose, glabrous, the style slender, 4 mm. long; ovules numerous, pluriseriate.

Panama: Chiriqui, Las Lagunas, 2 mi. SW El Volcan, common in dense woods, elev. 4200 ft., *Edwin L. Tyson 866* (MO, type; LL, isotype).

The reflexed corolla, persistent at base of developing fruits, is an unusual feature not previously observed in any other species of *Ardisia*.

**Ardisia Tysonii** Lundell, sp. nov. – Frutex, ca. 3 m. altus; ramuli crassi, furfuraceo-lepidoti; folia parva, petiolata, petiolo 6–11 mm. longo, canaliculato; lamina coriacea, elliptica vel ovato-elliptica, 5–8.5 cm. longa, 2–4 cm. lata, apice subabrupte acuminata, basi rotundata et acutiuscula, supra glabrata, subtus lepidota, integra; inflorescentia terminalis, tripinnatim paniculata, crassa, furfuraceo-lepidota; flores 5-meri, glomerati; pedicelli crassi, ca. 1 mm. longi; sepala late ovato-elliptica, asymmetrica, ciliolata; ovarium minute punctatum; ovula numerosa, pluriseriata.

Shrubs, about 3 m. tall, the branchlets short, thick, furfuraceous-lepidote with large closely appressed brown scales; leaves small, petiolate, the petioles 6–11 mm. long, canaliculate, lepidote; leaf blades rigidly coriaceous, elliptic or ovate-elliptic, 5–8.5 cm. long, 2–4 cm. wide, apex subabruptly short acuminate, base rounded and acutish, lepidote and paler beneath, glabrous early above, young leaves conspicuously black-punctate, margin entire, the midvein elevated beneath, narrowly impressed above, the primary veins slender, evident on both surfaces; inflorescences terminal, tripinnately paniculate, with stout rachis and branches, furfuraceous-lepidote, up to 10 cm. long; flowers 5-parted, glomerate at ends of short thick branches, the pedicels short, about 1 mm. long, thicker than calyx; sepals 5, broadly ovate-elliptic, 2 mm. long, 2.2 mm. wide, slightly asymmetrical, rounded at apex, the margin uniformly ciliolate, punctate with large black glands medially, with a few orange glands bordering these; ovary ellipsoid, punctate with small black glands; ovules numerous, pluriseriate.

Panama: Panama, Cerro Jefe, in *Clusia* forest at 2700-3000 ft., Jan. 27, 1966, *Edwin L. Tyson, J. Dwyer & Kurt Blum 3279* (MO, type; LL, isotype), shrub 10 ft. tall.

*A. Tysonii* and *A. Dwyeri,* both described from Cerro Jefe, are closely related, differing in leaf form, pedicel length and form of inflorescence. In *A. Dwyeri* the narrow bipinnately paniculate inflorescences have rather remote branches, while the tripinnate panicles of *A. Tysonii* are spreading and ample. The affinity of both species seems to be with *A. blepharodes* Lundell of Costa Rica, all having similar rather asymmetrical sepals, which are fimbriate on overlapped edge in *A. blepharodes* and *A. Dwyeri.*

**Gentlea propinqua** (Kunth) Lundell, comb. nov. *Ardisia propinqua* Kunth, Nov. Gen. & Sp. 7: 213. 1818.

There are two sheets in Herbier Humboldt & Bonpland at Paris labeled *Ardisia propinqua,* one of which has "Orinoco" on the label, the other without locality designated. In the original description, Orinoco is cited as the locality.

Two species described from Venezuela, *Ardisia Robinsonii* Mez and *Ardisia meridensis* Steyermark, have been considered synonyms of *Gentlea venosissima* (Ruiz & Pavon) Lundell (Wrightia 3: 103. 1964; 3: 198. 1966). If the Venezuelan populations represent a distinct taxon, then *Ardisia propinqua* Kunth has priority.

Mez in his 1902 monograph, p. 84, listed *"?A. propinqua* H.B.K." in synonymy under *Ardisia foetida* Willd. It has no affinity to that taxon. The original description was based on fruiting material, and it is gratifying to be able to clarify the relationships of the species.

**Parathesis montana** Lundell, sp. nov. — Frutex; ramuli crassiusculi, minute ferrugineo-puberuli; folia petiolata, petiolo 1.5–2.5 cm. longo; lamina membranacea, oblanceolato-elliptica vel oblanceolata, 12.5–18.5 cm. longa, 4.5–5.5 cm. lata, apice subabrupte acuminata, basi acuta vel subacuminata, integra, subglabra, punctata, reticulata; inflorescentia axillaris, paniculata, usque ad 12 cm. longa, minute papilloso-puberula, glabrata; pedicelli 5–7 mm. longi; flores subcorymbosi, ca. 5 mm. longi; sepala 1–1.3 mm. longa, acuta, papilloso-puberula; petala lanceolata, ca. 5 mm. longa, extus papilloso-puberula, intus villoso-tomentosa; stamina 2.2–2.6 mm. longa; filamenta ca. 1.4 mm. longa, epunctata; antherae ovato-lanceolatae, ca. 1.4 mm. longae, acutae, punctatae; ovarium hirtellum; ovula 5 vel 6, uniseriata.

Shrubs, branchlets rather stout, minutely ferruginous-puberulent at first, the apical buds with closely appressed rufous indument; leaves with slender petioles 1.5–2.5 cm. long; leaf blades oblanceolate or oblanceolate-elliptic, 12.5–18.5 cm. long, 4.5–5.5 cm. wide, apex subabruptly acuminate, base acute or subacuminate, membranaceous, entire, at first sparingly puberulent on lower surface, the appressed stellate hairs minute, glabrescent, punctate, the glands rounded and lineate, costa elevated beneath, nearly plane above, primary lateral veins slender, 9 or 10 pairs, arcuately ascending, anastomosing into submarginal vein, openly re-

ticulate; inflorescences axillary, lax, long pedunculate, bipinnately paniculate, the panicles up to 12 cm. long, very minutely papillose-puberulent, glabrate; pedicels slender, 5–7 mm. long, very minutely papillose-puberulent; flowers subcorymbose, about 5 mm. long at anthesis; sepals triangular, 1–1.3 mm. long, acute, orange-red punctate, minutely papillose-puberulent; petals lanceolate about 5 mm. long, papillose-puberulent dorsally, short villous-tomentose on inner surface except for small glabrous area at base, reddish-punctate in lines; stamens 2.2–2.5 mm. long; filaments about 1.4 mm. long, glabrous, not punctate; anthers ovate-lanceolate, about 1.4 mm. long, apex acute, with a few small red-black glands dorsally, dorsifixed about one-third above base; ovary ovoid, smooth, tapering into style, hirtellous at apex and at base of style, a few short hairs extending up style; style about 4 mm. long, punctate; placenta obovoid, with minute red glands at base; ovules 5 or 6, uniseriate, enclosed; fruits depressed-globose.

Panama: Darien, cloud forest, mossy forest, Cana Trail between Cerro Campamiento and Las Escalera to "Paramo" E of Tres Bocas, Apr. 30, 1968, *Joseph H. Kirkbride & James A. Duke 1340* (MO, type; LL, fragment), shrub, petals pink outside, purple inside, anthers white; Cerro Pirre, cloud forest and or mossy forest, alt. 2500–4500 ft., Aug. 9-10, 1967, *J. A. Duke & T. E. Elias E13693* (LL), commonly an understory shrub to 25 feet tall in elfin forest.

*P. montana* has affinity to *P. venezuelana* Mez and *P. vulgata* Lundell, differing at once in its leaves with 9 or 10 pairs of arcuately ascending lateral veins and open reticulation. Its flowers are smaller with the stamens less than 2.5 mm. long.

**Parathesis tenuifolia** Lundell, sp. nov. – Arbor parva; ramuli novelli minute et parce lepidoti; folia longe petiolata, petiolo 1.5–2.3 cm. longo; lamina membranacea, glabra, nigro-punctata, oblanceolata vel oblongo-oblanceolata, 7–15 cm. longa, 2.5–4.6 cm. lata, apice subabrupte acuminata, basi attenuata, acuminata, integra vel subintegra; inflorescentia terminalis, anguste paniculata, usque ad 15 cm. longa, minute papillato-puberula; pedicelli fructiferi 3–5 mm. longi; flores ignoti; sepala 5, 1.3–1.6 mm. longa, acuta, nigro-punctata; fructus globosus, 5–6 mm. diam.

Tree about 10 m. high, 10 cm. diam., the branchlets rather slender, minutely and sparsely lepidote, glabrate; leaves with long slender petioles 1.5–2.3 cm. long, the petioles canaliculate, sparsely and minutely lepidote beneath at first; leaf blades membranaceous, glabrous, conspicuously black-punctate, oblanceolate or oblong-oblanceolate, 7–15 cm. long, 2.5–4.6 cm. wide, apex subabruptly acuminate, base attenuate, decurrent on the petiole, the margin entire or subentire, the midvein nearly plane at base above, elevated beneath, the primary lateral veins very slender, 15–17 pairs, ascending at a wide angle, finely reticulate beneath, the veins less evident above; inflorescences terminal, exceeding leaves, nar-

rowly tripinnately paniculate, up to 15 cm. long, minutely and densely papillate-puberulent; pedicels slender, 3 5 mm. long; flowers unknown; calyx subtending fruits minutely papillate-puberulent, the sepals narrowly triangular, 1.3–1.6 mm. long, acute, black-punctate; fruits globose, 5–6 mm. diam. when ripe, the persistent base of styles and apex of fruit at base of style with scattered short reddish hairs.

Panama: Bocas del Toro, region of Almirante, Bocas Island, Jan.-March, 1928, *G. Proctor Cooper 463* (F, type; LL, fragment), tree 30 ft., 4 in. diam., *"crabwood."*

*P. tenuifolia*, unfortunately known only from fruiting material, appears to be closely related to *P. Rothschuhii* Mez of Nicaragua, which was described from fruiting specimens also. *P. tenuifolia* has thinner smaller leaves with longer petioles, essentially glabrous branchlets and leaves (fruiting condition), and longer pedicels.

**Rapanea Allenii** Lundell, sp. nov. — Arbor parva; ramuli crassi, glabri; folia glabra, petiolata, petiolo 5–10 mm. longo; lamina chartacea, opaca, oblanceolata vel oblongo-oblanceolata, 6–10 cm. longa, 2–2.8 cm. lata, apice late obtusa, basi acuta, revoluta, integra; inflorescentia axillaris, bracteata; flores 5-meri, fasciculati; pedicelli 2–3 mm. longi; sepala lanceolata, 1–1.4 mm. longa, acuminata, ciliolata; corolla papilloso-puberula, 3 mm. longa; petala lanceolata, connata ca. 1 mm., obtusa; antherae oblongo-ellipticae, ca. 1.3 mm. longae, apiculatae; ovarium glabrum.

Trees, about 12 m. high, the branchlets rather thick, glabrous; leaves glabrous, petiolate, the petioles 5–10 mm. long, slender, narrowly marginate; leaf buds ciliate, otherwise glabrous; leaf blades chartaceous, drying dull gray, opaque, with venation obscure, scarcely evident, the blades oblanceolate or oblong-oblanceolate, 6–10 cm. long, 2–2.8 cm. wide, apex bluntly obtuse, base narrowed, acute, revolute, decurrent on the petiole, midvein plane above, elevated beneath, margin entire, glands obscure; inflorescences with flowers borne on short bract-covered axillary shoots mostly on old wood, the shoots probably perennial; the bracts blackish, ciliate, tightly enveloping the shoots; flowers 5-parted, fasciculate at ends of shoots; pedicels erect, 2–3 mm. long; sepals of staminate flowers free almost to base, lanceolate, 1–1.4 mm. long, acuminate, punctate with orange glands, ciliolate, revolute when dry; corolla of staminate flowers minutely papillose-puberulent, 3 mm. long; petals lanceolate, connate about 1 mm. at base, apex obtuse, punctate with orange glands; anthers thick, sessile, borne at apex of corolla tube, oblong-elliptic, about 1.3 mm. long, apex rounded and apiculate; ovary ovoid, glabrous, tapering into thick conical style; pistillate flowers unknown.

Panama: Chiriqui Province, north forested face of Cerro Copete, an eastern spur of Chiriqui Volcano, alt. 8000–8500 ft., July 29, 1947, *Paul H. Allen 4869* (US, type; MO, isotype; LL, fragment), tree, 40 ft., flowers white.

*R. Allenii* is notable for large staminate flowers with corolla 3 mm. long, pedicels 2–3 mm. long, and acuminate orange–punctate sepals which are revolute when dry. The flowers and the opaque thickish bluntly obtuse leaves are quite distinct from those of *R. pellucido-punctata* (Oerst.) Mez, which occurs at lower elevations in the same area.

**Rapanea panamensis** Lundell, sp. nov. — Frutex vel arbor parva; ramuli crassiusculi, parce rufo-puberuli; folia petiolata, petiolo supra puberulo, marginato, 4–10 mm. longo; lamina membranacea vel subchartacea, anguste elliptica vel oblanceolata, 4–12 cm. longa, 1.8–3.7 cm. lata, apice obtusa, basi acuta, revoluta, integra, pellucido-punctata; inflorescentia axillaris, glomerata; flores masculi 4- vel 5-meri; pedicelli usque ad 1 mm. longi; calyx ca. 1 mm. longus; sepala basi connata, ovata, acuta, ciliolata, parce punctata; petala oblongo-lanceolata, 2–2.4 mm. longa, basi connata ca. 0.5 mm., papilloso-puberula, parce nigro-punctata; antherae crassae, ca. 1.3 mm. longae, minute apiculatae.

Shrubs or small trees up to 9 m. tall, the branchlets rather thick, rather sparsely pubescent at first with short reddish hairs; leaves with petioles pubescent at first above, the petioles marginate, 4–10 mm. long; leaf blades thin, membranaceous to subchartaceous, narrowly elliptic or oblanceolate, 4–12 cm. long, 1.8–3.7 cm. wide, narrowed to the obtuse apex, the base acute, revolute, concolorous, margin entire, the costa nearly plane above, elevated beneath, the primary veins very slender, discernible but rather obscure, pellucid-punctate; inflorescences axillary, the flowers densely glomerate on short shoots, the shoots tightly enveloped by fimbriate bracts; staminate flowers 4- or 5-parted; pedicels up to 1 mm. long, rather stout; calyx about 1 mm. long; sepals united one-third to one-half, ovate, acute, ciliolate, thin, punctate with few very small blackish glands; petals oblong-lanceolate, 2–2.4 mm. long, connate at base about 0.5 mm., cucullate, acutish, papillose-puberulent, black-punctate mostly above the middle with black rounded and short linear glands, these comparatively few; anthers thick, elliptic or ovate-elliptic, about 1.3 mm. long, slightly shorter than petals, attached dorsally to petals above corolla tube, rounded and minutely apiculate, epunctate; pistil abortive; fruit subglobose, punctate with elevated pellucid glands, the pedicels of fruit up to 1.5 mm. long.

Panama: San Jose Island, Perlas archipelago, Gulf of Panama, about 55 miles SSE of Balboa, main road west of Matta Puerco, in small woods among thickets on hillside, Nov. 9, 1944, *Ivan M. Johnston 441* (LL, type; MO, US, isotypes), tree 30 ft. tall, flowers whitish.

*R. panamensis* has pubescent twigs, upper surface of petioles puberulent, leaves narrowed to the obtuse apex, and rather sparingly punctate flowers. A relationship to *R. punctata* (Lam.) Lundell is probable.

**Weigeltia spectabilis** (Standl.) Lundell, comb. nov. *Ardisia spectabilis* Standl., Field Mus. Pub. Bot. 18: 893. 1938.

## EBENACEAE

**Diospyros Schippii** Standl., Carnegie Inst. Publ. 461: 80. 1935.

Guatemala: Dept. Peten, La Cumbre, km. 142 of Cadenas Road, on Las Canas Road 700 m., in low forest on top of hill, July 31, 1969, *Elias Contreras 8812* (LL), tree, 45 ft. high, 8 in. diam.

Known previously only from the type, *W. A. Schipp 1281*, collected at Camp 34, on the boundary between Peten and British Honduras.

## OLEACEAE

**Forestiera rhamnifolia** Griseb., Cat. Pl. Cub. 169. 1866.

Guatemala: Dept. Peten, Lacandon, El Caribal, bordering the river in high forest, about 6 km. SW, Feb. 5, 1962, *Elias Contreras 3319* (LL), tree, 35 ft. high, 5 in. diam., flowers greenish; Guayacan, La Pita, bordering Rio San Pedro, in *tintal* on Guadalupe Ranch, Jan. 11, 1968, *Contreras 7441* (LL), tree, 30 ft. high, 3 in. diam.; Guayacan, La Pita, bordering Rio San Pedro, in *tintal*, El Ceibo, Jan. 11, 1968, *Contreras 7447* (LL), tree, 25 ft. high, 3 in. diam.

I have not seen type material of this species, but the Peten trees appear to be referable here.

## BIGNONIACEAE

**Enallagma macrophylla** (Seem.) Lundell, comb. nov. *Crescentia macrophylla* Seem., Hook. Journ. Bot. Kew Misc. 6: 274. 1854. *Amphitecna macrophylla* (Seem.) Miers ex Baill., Rev. Hort. 465. 1882. *Neotuerckheimia megalophylla* Donn. Sm., Bot. Gaz. 47: 258, *fig. 1*. 1909.

Guatemala: Dept. Alta Verapaz, Chapultepec Farm on Sebol to Coban Road, in low forest bordering arroyo, about 1 km. north, May 26, 1964, *Elias Contreras 4815* (LL), tree, 35 ft. high, 10 in. diam., flowers greenish.

The ovary is incompletely 2-celled as in *Enallagma*.

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ADDRESS ALL INQUIRIES TO:

C. L. Lundell, Director
Texas Research Foundation
Renner, Texas 75079

VOLUME 4 DECEMBER, 1971 NUMBER 6

# WRIGHTIA

A BOTANICAL JOURNAL

CONTENTS

Studies of American Plants — IV.
By Cyrus Longworth Lundell . . . . . 173

PUBLISHED BY
TEXAS RESEARCH FOUNDATION
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WRIGHTIA, a bontanical journal, is a publication of Texas Research Foundation. The contributions are by staff members and collaborators. Each volume will contain a series of numbers. The numbers will be issued at irregular intervals over a period of several years.

VOLUME 4, NUMBER 6
ISSUED DECEMBER 31, 1971

Printed in the U.S.A.
Etheridge Printing Company
Dallas, Texas

WRIGHTIA

VOLUME 4 DECEMBER, 1971 NUMBER 6

# STUDIES OF AMERICAN PLANTS – IV

CYRUS LONGWORTH LUNDELL

The plants described or otherwise noted in *Studies of American Plants – IV* include a novel new genus with unisexual flowers in the Myrtaceae, and various species of other families from Chiapas south to Panama.

In May and June 1971, Dr. George R. Proctor made a collection in Costa Rica and Panama sponsored by the Lundell Herbarium. Although he concentrated on ferns and fern allies, other groups are well represented. Among the interesting species are three novelties in *Ardisia* and the second collection of the rare *Ardisia panamensis* Lundell. Another remarkable species of *Parathesis* is described from Chiapas.

## ARISTOLOCHIACEAE

**Aristolochia belizensis** Lundell, sp. nov. – Scandens fruticosa, caulibus gracilibus costatis sparse hispidulis; folia petiolata, petiolo 1.5–3.5 cm. longo; lamina coriacea, oblongo-elliptica vel ovato-elliptica, 8–15 cm. longa, 3.5–8 cm. lata, apice acuta vel subacuminata, basi profunde cordata, 3-nervia, subtus minute puberula, nervis prominulis reticulata; capsula longe stipitata, oblongo-elliptica, usque ad 10 cm. longa, 5 cm. diam., costata.

Woody vine with corky stems, the leafy section slender, inconspicuously costate, rather sparsely hispidulous; leaves petiolate, the petioles rather stout, 1.5–3.5 cm. long, hispidulous at first; leaf blades coriaceous, oblong-elliptic or ovate-elliptic, 8–15 cm. long, 3.5–8 cm. wide, widest at or below the middle, apex acute or subacuminate, base cordate, open, the lobes rounded, not overlapping, sparsely hispidulous above at first, nearly smooth, densely and minutely puberulent beneath, the veins and veinlets coarse and prominently reticulate, the base conspicuously 3-nerved, pen-ninerved above; fruits axillary, the large capsule long-stipitate, oblong-elliptic, up to 10 cm. long, 5 cm. in diameter, with conspicuous ridges.

British Honduras: Toledo District, in cohune ridge, Botan Creek, Rio Grande, May 20, 1944, *Percy H. Gentle 4617* (LL, type).

Also represented by *Gentle 5549* (LL), *6928* (LL) from Toledo District, and *Elias Contreras 6547* (LL) from Peten and *7876* (LL) from Alta Verapaz, Guatemala.

This is the species reported as *A. Chapmaniana* Standl. in the Flora of Guatemala (Fieldiana Bot. 24(4): 96. 1946), described from Panama.

*A. belizensis* differs in having long-petioled leaves openly cordate at base and strongly 3-nerved. The coarse densely puberulent reticulate venation of the lower leaf surface is distinctive.

**Aristolochia petenensis** Lundell, sp. nov. — Suffruticosa, volubilis, caulibus juvenibus dense pubescentibus, glabratis; folia petiolata, petiolo 5–12 mm. longo; lamina chartacea, oblongo-elliptica vel obovato-elliptica, 6–17 cm. longa, 2–8 cm. lata, apice acuta, basi rotundata, penninervia, reticulato-venosa, supra glabrata, subtus pilosa; flores 1, 2 vel 3, racemosi, ca. 5.5 cm. longi; pedicelli 6–10 mm. longi; ovarium velutinum; calyx 3-lobatus; fructus clavatus, usque ad 6.5 cm. longus, 1.4 cm. diam.

Woody vine with corky ridged stems, the leafy section up to 1.3 cm. diam., the new growth velutinous, glabrate rather early; leaves petiolate, the petioles rather stout, 5–12 mm. long, shallowly canaliculate, velutinous at first; leaf blades chartaceous, oblong-elliptic or obovate-elliptic, 6–17 cm. long, 2–8.3 cm. wide, apex acute, base rounded or subtruncate, new leaves pilose above, glabrate early, the lower surface persistently pilose, midvein elevated beneath, subimpressed above, penninerved, the primary lateral veins 4–6 pairs, elevated beneath, the veins reticulate and conspicuous on undersurface; inflorescences axillary, solitary, racemose, 1- to 3-flowered, velutinous with brownish hairs, the bractlets small; pedicels 6–10 mm. long, slender; ovary velutinous, 7–10 mm. long; calyx up to 4.5 cm. long, velutinous outside, glabrous within, the tube short, campanulate, about 7 mm. long, not constricted above; the calyx 3-lobed, the lobes triangular-ovate, apiculate, the lateral lobes up to 2.3 cm. long, the central lobe equaling the lateral above the gibbous base; anthers sessile, oblong, about 2.3 mm. long; capsule clavate, up to 6.5 cm. long, 1.4 cm. diam., ribbed, velutinous with brown hairs; the fruiting pedicels elongated.

Guatemala: Dept. Peten, Dolores, bordering Arroyo Mul, in low forest about 300 m. south, July 13, 1961, *Elias Contreras 2597* (LL, type), vine, flowers yellow-green outside, blood-red within and yellow in center, "*guaca*"; Dos Lagunas, bordering North Lake, in low forest, Dec. 15, 1960, *Contreras 1686* (LL), vine, fruit brownish.

The penninerved leaves, and perianth with three large lobes, distinguish *A. petenensis* from *A. sericea* Benth. to which it appears to have affinity.

## POLYGONACEAE

**Coccoloba Schippii** Lundell, Bull. Torrey Club 66: 594. 1939; Howard, Jour. Arnold Arb. 11: 206. 1959.

Guatemala: Dept. Peten, km. 83 of Cadenas road, in low forest, wet land, Feb. 17, 1971, *Elias Contreras 10540* (LL), shrub, 3 in. diam., 15 ft.

high, fruit green, *"uva"*; *Contreras 10544* (LL), *10548* (LL); Feb. 18, 1971, *Contreras 10552* (LL).

These collections were made not too far from the type locality of *C. Schippii*, and they provide the first good series of the taxon. The Contreras collections, in young fruit, have short racemose inflorescences 2 to 8.5 mm. long. The pedicels and pubescence suggest *C. escuintlensis* Lundell. *C. Schippii* is very close to that species, and may well be synonymous as suggested by Howard.

## ERYTHROXYLACEAE

**Erythroxylon chiapense** Lundell, sp. nov. – Frutex, ramulis gracilibus, stipulis usque ad 2.5 mm. longis, bicuspidatis; folia membranacea, petiolata, petiolo 1.5–2 mm. longo; lamina elliptica vel obovato-elliptica, 2.5–5.5 cm. longa, 1.5–2.7 cm, lata, apice rotundata, basi obtusiuscula; pedicelli fructiferi 2–4 mm. longi; sepala anguste lanceolata, ca. 2 mm. longa, acuta; drupa oblonga, ca. 7 mm. longa, apice acutiuscula.

Shrub, the branchlets slender, pallid, sometimes reduced to short leafy spurs; stipules triangular, up to 2.5 mm. long, keeled, finely bicuspidate, the cusps threadlike and falling early; leaves very thin, membranaceous, petiolate, the petioles very short, 1.5–2 mm. long, canaliculate; leaf blades elliptic or obovate-elliptic, 2.5–5.5 cm. long, 1.5–2.7 cm. wide, apex rounded, base narrowed and obtusish, paler beneath, not areolate, the midvein elevated beneath, plane above except for a narrow line, the veins slender and obscure but finely reticulate on upper surface when dry; flowers 1 or 2 in leaf axils; fruiting pedicels rather stout, 2–4 mm. long; calyx cleft almost to base, the sepals narrowly lanceolate, about 2 mm. long, acute; drupes oblong, about 7 mm. long, acutish, drying costate.

Mexico: Chiapas, Venustiano, near Carranza, alt. 800 m., June 13, 1945, *Eizi Matuda 5902* (LL, type).

*E. chiapense* appears to be related to *E. pallidum* Rose, but differs at once in larger subsessile leaves.

**Erythroxylon eugenioides** Lundell, sp. nov. – Arbor, ramulis subteretibus, stipulis persistentibus, lanceolatis, 3–6 mm. longis; folia subcoriacea, petiolata, petiolo 3–6 mm. longo; lamina obovata vel obovato-elliptica, (2) 3–6 cm. longa, 1.8–3 cm. lata, apice rotundata, emarginata, basi acuta; pedicelli 2.5–4 mm. longi; sepala ca. 1 mm. longa, acuta; petala anguste elliptica, ca. 4 mm. longa; drupa oblonga, 5–6 mm. longa, obtusa.

Arborescent shrub or tree up to 15 m. high, 25 cm. in diam., the branchlets short, slender, subterete, drying blackish; stipules persistent, lanceolate, spreading at base, often appearing subulate, 3–6 mm. long, entire, keeled, the margin at first erose-ciliolate; leaves subcoriaceous, petiolate, the petioles 3–6 mm. long, canaliculate; leaf blades drying pale brown or

yellow-brown, whitish beneath and areolate, rather indistinctly so, obovate or obovate-elliptic, (2) 3–6 cm. long, 1.8–3 cm. wide, apex broadly rounded, usually emarginate and apiculate, base narrowed, acute and slightly decurrent, the midvein elevated beneath, sulcate above but elevated medially as a narrow line; flowers fascicled in the leaf axils; pedicels of flowers 2.5–4 mm. long, thickened above and costate: calyx about 1.3 mm. long, the lobes triangular-ovate, thick, about 1 mm. long, acute; petals narrowly elliptic, about 4 mm. long, with claw 1 mm. long, the ligule 1 mm. long; ovary ellipsoid, the three styles free, subequaling stamens; drupes oblong, 5–6 mm. long, obtuse at apex.

Guatemala: Dept. Peten, Dos Lagunas, Ixcanrio, on Alta Mira road 4 km. N, bordering La Laguneta Bajo, in *tintal,* May 13, 1969, *Elias Contreras 8535* (LL, type), shrub, 15 ft. high, 2 in. diam., flowers yellow-green, aromatic; Bajo de Santa Fe, on *pinal* trail, about 38 km. east of Tikal, in *tintal,* Feb. 2, 1960, *Contreras 582* (LL), tree, 25 ft., 5 in. diam.; Tikal National Park, in *tintal,* El Carrizal, 22 km. SW of Tikal, Jan. 31, 1969, *Contreras 8328* (LL), tree, 45 ft. high, 10 in. diam.

The leaves suggest certain species of *Eugenia* of the same swampy habitat *(bajos)* of northern Peten. Its comparatively long stipules and the rather thick leaves drying brownish but whitened beneath are distinctive features of *E. eugenioides.* The areolate area is present, but rather inconspicuous.

**Erythroxylon guatemalense** Lundell, sp. nov. — Frutex, ca. 2 m. altus, ramulis gracilibus, stipulis persistentibus, ca. 2 mm. longis; folia membranacea, petiolata, petiolo usque ad 5 mm. longo; lamina anguste elliptica vel lanceolata, 3–7.5 cm. longa, 8–20 mm. lata, apice acuta, basi acuminata; flores breviter pedicellati; pedicelli fructiferi usque ad 6 mm. longi; sepala anguste lanceolata, ca. 2 mm. longa, acuminata; petala 3–3.3 mm. longa; drupa ca. 9 mm. longa.

Shrub, up to 2 m. high; branchlets slender, brownish; stipules persistent, triangular, acuminate, about 2 mm. long, with a narrow dorsal keel; leaves thin, membranaceous, petiolate, the petioles slender, up to 5 mm. long, shallowly canaliculate; leaf blades green or brownish, paler and rather inconspicuously areolate beneath, narrowly elliptic or lanceolate, widest at the middle, 3–7.5 cm. long, 8–20 mm. wide, apex acute, base acuminate, midvein elevated beneath, nearly plane above except for narrow elevated line, the lateral veins very slender, finely reticulate above, obscure beneath; flowers 1 or 2 in the leaf axils; pedicels 2.5–3 mm. long at anthesis, up to 6 mm. long in fruit; calyx cleft almost to base, the sepals narrowly lanceolate, about 2 mm. long, acuminate; petals narrowly elliptic, 3–3.3 mm. long, with claw about 1.3 mm. long, the ligule lobed, about 0.9 mm. long; the 3 styles free, about 1 mm. long, recurved; drupes slender, drying about 9 mm. long, grooved.

Guatemala: Dept. Izabal, Puerto Mendez, Cienaga, in high forest bordering the river, May 23, 1970, *Elias Contreras 9875* (LL, type), shrub, 6 ft., flowers white; *9867* (LL), shrub 7 ft., fruit reddish.

With only one or two flowers in the leaf axils, and green acute narrowly lanceolate leaves not conspicuously areolate beneath, *E. guatemalense* is not to be confused with *E. areolatum* L. to which it has affinity.

**Erythroxylon tikalense** Lundell, sp. nov. – Frutex vel arbor parva, ramulis gracilibus, stipulis persistentibus, ca. 1.2 mm. longis; folia membranacea, petiolata, petiolo 1.5–2 mm. longo; lamina obovata vel late elliptica, apice rotundata, emarginata, basi obtusa vel rotundata; pedicelli 1.5–3 mm. longi; sepala ovata, acuta, 1 mm. longa; petala 2–2.3 mm. longa; drupa 4–5 mm. longa.

Arborescent shrub or small tree, up to 8 m. high, leafy branchlets spur-like and short or slender; stipules broadly triangular, about 1.2 mm. long, acuminate; leaves small, membranaceous, petiolate, the petioles short, 1.5–2 m. long, shallowly canaliculate; leaf blades obovate, broadly elliptic or suborbicular 0.8–3 cm. long, 0.6–1.7 cm. wide, apex broadly rounded, usually emarginate, base obtuse or rounded, greenish above, whitened beneath, not areolate, midvein slender and elevated beneath, plane above except for a slender medial line, the lateral nerves very slender, inconspicuous on both surfaces; flowers solitary or several in the leaf axils; pedicels of flowers and fruits 1.5–3 mm. long; enlarged above; calyx about 2 mm. long, cleft to middle or below, the sepals ovate, acute, thick; petals oblong-elliptic, 2–2.3 mm. long, apex rounded; ligule medial, distinctly bilobed, the ovate lobes about 0.4 mm. long; drupes ellipsoid, 4–5 mm. long when dry.

Guatemala: Dept. Peten, Tikal, on top of Temple IV, June 9, 1960, *Elias Contreras 1051* (LL, type), shrub, 12 ft. high, 3 in. diam., flowers white; Tikal, on side of Temple IV, Aug. 29, 1959, *Contreras 131* (LL), tree, 25 ft., 3 in. diam., fruits orange.

*E. tikalense* appears to be related to *E. brevipes* DC., the leaves of which are cuneate at base. It is represented by a large series of collections from the Tikal temples and from the wooded swamps *(bajos)* of northern Peten, all in the Lundell Herbarium.

## EUPHORBIACEAE

**Drypetes guatemalensis** Lundell, sp. nov.—Arbor excelsa; ramuli graciles, glabri; folia glabra, petiolata, petiolo 7–15 mm. longo; lamina chartacea, areolata, lanceolata vel anguste oblonga, 12.5–27 cm. longa, 3–8.5 cm. lata, acuminata, basi acuta, integra; pedicelli fructiferi crassi, 2–4 mm. longi, strigillosi; drupa obovoideo-globosa vel globosa, usque ad 3 cm. diam., dense minuteque tomentosa.

Large trees, up to 30 m. high, 50 cm. diam., the branchlets slender, glabrous; leaves glabrous, with rather slender canaliculate petioles, the petioles 7–15 mm. long, drying dark brown; leaf blades rather thin, chartaceous, entire, lanceolate or narrowly oblong, 12.5–27 cm. long, 3–8.5 cm. wide, apex acuminate, the acumen obtusish, base acute, somewhat inaequilateral, midvein prominent beneath, elevated and less conspicuous above, the primary lateral veins slender, widely ascending, up to 12 pairs, equally evident on both surfaces, reticulate-veined, rather conspicuously areolate; fruits solitary in the leaf axils; pedicels thick, 2–4 mm. long at maturity, persistently strigillose; fruits obovoid or subglobose, up to 3 cm. in diam., 1- or 2-seeded, minutely grayish-tomentose, crowned by remnants of flaring stigma borne on short style; the persistent disk at base of fruits pubescent.

Guatemala: Dept. Izabal, Puerto Mendez, in *zapotal* on Rio Dulce Road, Cienaga, 26 km., Sept. 22, 1970, *Elias Contreras 10332* (LL, type), tree, 70 ft. high, 18 in. diam., fruit green; abundant.

Other collections from same general vicinity, referable to this species, are *Contreras 10172, 10190, 10334, 10335*, all in the Lundell Herbarium.

This species closely resembles *D. Brownii* Standl., but is distinct in having thinner areolate leaves with rather slender dark brown petioles up to 1.5 cm. long, and fruits borne on thick pedicels 2–4 mm. long. In *D. Brownii* the pale thick petioles do not exceed 6 mm. in length, the pedicels are fully twice as long as in *D. guatemalensis,* and the leaves are rather stiffly coriaceous.

## CELASTRACEAE

**Maytenus Woodsonii** Lundell, Ann. Mo. Bot. Gard. 26: 291, *tab. 22.* 1939.

Costa Rica: Cartago, S slopes of Volcan Irazu, 9000–10,000 ft., June 15, 1971, *George R. Proctor 32356* (LL), tree, 8 m. tall, flowers dark red.

The species was described from Panama.

**Zinowiewia ovata** Lundell, Bull. Torrey Club 67: 620. 1940.

Panama: Chiriqui, km. 4.6 on Volcancito road, W of Boquete, 4600 ft., May 14, 1971, *George R. Proctor 31876* (LL), tree, 10 m. tall; Boquete, 3500–3800 ft., May 19, 1971, *Proctor 31999* (LL), tree, 15 m. high, flowers green, minute.

This seldom collected species appears amply distinct in its obovate samaras rounded and emarginate apically. Those of the related *Z. costaricensis* Lundell are oblanceolate and much narrower.

## VIOLACEAE

**Orthion caudatum** Lundell, Wrightia 4: 38. 1968.

Guatemala: Dept. Izabal, Peten-Guatemala road, in high forest on

rocky hill, 6 km. from La Ruidoza, May 20, 1971, *Elias Contreras 10790* (LL), tree, 40 ft., 10 in. diam., flowers whitish and lilac-violet; in *corozal* 6 km. from La Ruidoza, May 20, 1971, *Contreras 10791* (LL), tree, 45 ft., 10 in. diam., flowers whitish and lilac-blue; *10792* (LL), shrub, 15 ft., 5 in. diam., flowers whitish and lilac-blue; *10793* (LL), *10794* (LL), fruits green.

Known heretofore only from the type collected on the south shore of Lake Izabal, the Contreras material of *O. caudatum* is in flower and fruit. The lowest petal is 8–9 mm. long, distinctly gibbous at base, and retuse and nearly as wide as long above. The large smooth capsules are distinctly veiny and acute.

## MYRTACEAE

**Calyptranthes megistophylla** Standl., Carnegie Inst. Wash. Pub. 461: 75. 1935.

Guatemala: Dept. Izabal, on Peten-Guatemala road, in high forest, 4 km. from Ruta del Atlantico, May 23, 1971, *Elias Contreras 10818* (LL), *10820* (LL), *10821* (LL), tree up to 40 ft. high, 8 in. diameter, "*guayabillo.*"

The leaves are mostly elliptic and sometimes obovate, rarely lanceolate-elliptic as in the type. The large fruits are up to 1.5 cm. in diameter when dry. The species has been known heretofore only from the type collected on the British Honduras-Peten border.

**Eugenia cumbreana** Lundell, sp. nov. – Frutex, ramulis teretibus, gracilibus, glabris; folia parva, glabra, petiolata, petiolo 2–3 mm. longo; lamina subchartacea, anguste elliptica vel lanceolata, 3.5–6.5 cm. longa, 1.5–2.8 cm. lata, apice obtusiuscula, basi acuta; flores glomerati; pedicelli nulli; bracteolae connatae, rotundatae, ciliolatae; hypanthium minute puberulum; sepala late rotundata, usque ad 2 mm. lata, 1–1.2 mm. longa, ciliolata; discus ca. 1.5 mm. lata; fructus globosus, ca. 6 mm. diam.

Shrub, the branchlets slender, glabrous, with bark scaling off; leaves small, petiolate, the petioles 2–3 mm. long, shallowly canaliculate; leaf blades completely glabrous, thin, subchartaceous, narrowly elliptic or lanceolate, 3.5–6.5 cm. long, 1.5–2.8 cm. wide, apex narrowed and obtusish, base acute, decurrent, the midvein elevated beneath, nearly plane above, the primary lateral veins 10–12 pairs, slender, inconspicuous; flowers and fruits sessile, glomerate or subglomerate in leaf axils; buds about 2 mm. long; bracteoles broadly ovate, about 0.75 mm. long, rounded, ciliolate, connate at base; hypanthium very minutely and obscurely puberulent; sepals of fruits ciliolate, subequal, broadly rounded, up to 2 mm. wide, 1–1.2 mm. high; disk on fruit 1.5 mm. wide; fruits (immature) globose, up to 6 mm. in diam., not ribbed, but with irregular vertical veins evident in dried state.

Guatemala: Dept. Peten, km. 83 of Poptun Road, La Cumbre, in low forest, Feb. 17, 1971, *Elias Contreras 10547* (LL, type), shrub, 4 ft. high, fruit green and reddish.

The species may have affinity to *E. vesca* Lundell. The glomerate sessile flowers and fruits, and small thin leaves glabrous even in youngest growth stage are features of note in *E. cumbreana*. Except for vegetative buds with a few reddish appressed hairs at apex, the hypanthium minutely puberulent, and the bracteoles and sepals ciliolate, the plant is entirely glabrous.

**Mentodendron** Lundell, gen. nov. — Arbor dioecia, parva, perpunctata, ramulis glabris; folia parva, petiolata, glabra; flores 5-meri, unisexuales; inflorescentia paniculata, parva, perpunctata, glabra vel parce puberula; pedicelli nulli; alabastra parva, usque ad 1.5 mm. longa; hypanthium campanulatum; sepala 5, parva, late triangularia, pellucido-punctata; petala 5, suborbicularia, glabra; discus ca. 1.8 mm. latus, annulo staminali pubescente; stamina numerosa.

**Mentodendron guatemalense** (Lundell) Lundell, comb. nov. *Myrcia guatemalensis* Lundell, Wrightia 4: 42. 1968. *Pimenta guatemalensis* (Lundell) Lundell, Wrightia 4:159. 1971.

Guatemala: Dept. Peten, Cadenas, 4 km., Morales Road, on top of rocky hill, March 13, 1967, *Elias Contreras 6734* (LL, type), small tree, 20 ft. high, 3 in. diam., flowers white. Represented also by *Contreras 6825* (LL), *6832* (LL), *9260* (LL) from the same general locality in Peten and adjacent Izabal.

The nature of the fruits and other features of the tree are discussed in the publications cited. *Mentodendron*, named for the peppermint fragrance of the leaves, appears to be near *Amomis* and *Pimenta*, differing notably in having unisexual flowers.

## MYRSINACEAE

**Ardisia fimbrillifera** Lundell, sp. nov. — Arbor, ramulis rufo-lepidotis; folia petiolata, petiolo marginato, usque ad 1 cm. longo; lamina chartacea, anguste oblanceolata vel oblongo-oblanceolata, 18–32 cm. longa, 5–8 cm. lata, apice subabrupte acuminata, basi acuta, supra glabra, subtus lepidota; inflorescentia pyramidalis, terminalis, rufo-lepidotis, pinnatim paniculata, usque ad 32 cm. longa; flores 5-meri, racemosi vel subglomerati; pedicelli crassi, 1.5–3 mm. longi; sepala coriacea, nigro-punctata, 2–2.5 mm. longa, eroso-fimbrillifera; ovarium punctatum, stylo ca. 4.5 mm. longo; ovula numerosa, pluriseriata.

Tree, up to 20 m. tall with straight trunk and slender crown, the branches rather stout, brown-lepidote at first with closely appressed scales; leaves large, petiolate, the petioles thick, up to 1 cm. long, marginate to base; leaf blades chartaceous, narrowly oblanceolate or oblong-

oblanceolate, 18–32 cm. long, 5–8 cm. wide, apex subabruptly short acuminate, the acumen obtuse, base acutish and decurrent on petioles, paler and densely lepidote with appressed scales beneath, glabrous above, the midvein stout and elevated beneath, impressed as a narrow groove above, the primary veins slender, numerous, ascending at a wide angle, margin entire; inflorescences broadly pyramidal, equaling leaves, pinnately paniculate, up to 32 cm. high, minutely furfuraceous-lepidote with dark brown scales; flowers 5-parted, racemose or subglomerate in young fruit, the pedicels stout, 1.5–3 mm. long, finely lepidote; sepals nearly free, coriaceous, suborbicular or broadly ovate-orbicular, 2–2.5 mm. long, punctate with large black glands, the margin erose and fimbrilliferous; ovary ovoid, punctate; style slender, punctate, about 4.5 mm. long; ovules numerous, pluriseriate.

Costa Rica: Heredia, Tirimbina, in tropical wet forest, elev. 700 ft., June 2, 1971, *George R. Proctor 32238* (LL, type).

Related to *A. palmana* Donn. Sm., the species differs in having larger pedicellate flowers with coriaceous sepals conspicuously black-punctate and with fimbrilliferous erose margins. The style in *A. palmana* is only 3 mm. long compared with 4.5 mm. in *A. fimbrillifera*.

**Ardisia horquetensis** Lundell, sp. nov. – Arbor, ramulis percrassis, lepidotis; folia petiolata, petiolo crasso, marginato, usque ad 2.5 cm. longo; lamina subcoriacea, elliptica, 15–27 cm. longa, 6–10 cm. lata, apice acuminata, basi acuta, integra, supra glabra, subtus lepidota; inflorescentia terminalis, crassiramea, pinnatim paniculata, furfuracea; flores 5-meri, subglomerati et subspicati, pedicellis crassis subnullis; sepala libera, crassa, rotundata, 2.5–3 mm. longa, ciliolata; ovarium punctatum, stylo ca. 5.5 mm. longo; ovula pluriseriata.

Tree, up to 15 m. tall, the branches thick, up to 1 cm. in diameter at base of inflorescence, lepidote with closely appressed brown scales; leaves large, petiolate, the petioles thick, marginate, up to 2.5 cm. long; leaf blades subcoriaceous, elliptic, 15–27 cm. long, 6–10 cm. wide, apex acuminate, base acute and decurrent, margin entire, midvein stout and elevated beneath, nearly plane above, the primary lateral veins slender, numerous, widely ascending, glabrous above at maturity, closely appressed lepidote beneath; inflorescences terminal, pyramidal, pinnately paniculate, 15–30 cm. high, the rachis and branches thick, furfuraceous and with small scattered branched or dendroid hairs; flowers 5-parted, in glomerules on short spurs, or subspicate, subsessile or with short thick pedicels up to 1 mm. long; sepals free, thick, broadly ovate-orbicular, 2.5–3 mm. long, notched and rounded at apex, slightly asymmetrical, ciliolate, nearly glabrous, sparingly punctate with black glands; ovary ellipsoid, punctate, the style about 5.5 mm. long.

Panama: Chiriqui, trail to Cerro Horqueta, cloud forest, 6000–6500 ft., May 15, 1971, *George R. Proctor 31925* (LL, type).

*A. horquetensis* has affinity to *A. glomerata* Lundell from the same locality. Both have coarse stellate or dendroid hairs, these quite sparse in the inflorescence of *A. horquetensis*. The smaller subsessile flowers feature the latter species.

**Ardisia panamensis** Lundell, Wrightia 3: 198. 1966. *A. pallidiflora* Standl., Jour. Wash. Acad. 17: 523. 1927, not Ridley, 1912.

Panama: Chiriqui, trail to Cerro Horqueta, cloud forest, 6000–6500 ft., May 15, 1971, *George R. Proctor 31907* (LL), erect shrub, 2 m. tall, corolla pale pink.

This is the second collection, from type locality, of this rare and unique species.

**Ardisia rufa** Lundell, sp. nov. — Arbor parva; ramuli rufo-lepidoti; folia petiolata, petiolo marginato, usque ad 2 cm. longo; lamina subchartacea, oblanceolata vel anguste oblongo-oblanceolata, 12.5–23 cm. longa, 4.5–6 cm. lata, apice subabrupte acuminata, basi acuta, revoluta, supra glabra, subtus lepidota; inflorescentia terminalis, pyramidalis, pinnatim paniculata, rufo-furfuracea; flores 5-meri, subglomerati vel racemosi; pedicelli crassi, 1–2 mm. longi; sepala late ovata, 1.5–2 mm. longa; corolla 5.5 mm. longa; stamina ca. 5 mm. longa; ovarium punctatum, stylo 5.5–6 mm. longo; ovula pluriseriata; fructus subglobosus.

Tree, up to 15 m. tall; branchlets thick, rufous-lepidote with appressed scales; leaves large, petiolate, the petioles marginate, up to 2 cm. long; leaf blades thin, subchartaceous, oblanceolate or narrowly oblong-oblanceolate, 12.5–23 cm. long, 4.5–6 cm. wide, apex subabruptly short acuminate, base acute, revolute, decurrent, margin entire, lepidote on lower surface, glabrous above at maturity, the midvein elevated beneath, narrowly grooved above, the primary lateral nerves numerous, widely ascending; inflorescences terminal, very large and openly pyramidal, longer than leaves, up to 33 cm. high, furfuraceous with dark brown scales, pinnately paniculate, the branches rather remote and inconspicuously zigzag, slender, the flowers 5- rarely 6-parted, subglomerate at apex of branchlets, becoming racemose after anthesis; pedicels thick, 1–2 mm. long; sepals nearly free, rather thin, broadly ovate, 1.5–2 mm. long, punctate with small red-black glands, the margin hyaline, ciliolate; corolla 5.5 mm. long; petals narrowly elliptic, symmetrical, punctate with small blackish glands, united at base about 1 mm.; stamens about 5 mm. long, attached at apex of corolla tube, the filaments slender, 2.2 mm. long; anthers lanceolate, 2.8 mm. long, acute, with small inconspicuous dorsal glands, appearing concolorous; ovary subglobose, the style 5.5–6 mm. long; ovules large, pluriseriate; mature fruits about 8 mm. in diameter when dry, subglobose.

Panama: Chiriqui, mountain slopes SE of Cerro Punta, 6500–7000 ft., May 22, 1971, *George R. Proctor 32020* (LL, type), ripe fruits black.

*A. rufa* has affinity to *A. palmana* Donn. Sm. and *A. fimbrillifera* Lundell.

**Ardisia subsessilifolia** Lundell, Wrightia 4: 48. 1968.

Panama: Chiriqui, trail to Cerro Horqueta, cloud forest, 6000–6500 ft., May 15, 1971, *George R. Proctor 31891* (LL), shrub, 3.5 m. tall.

A cloud forest endemic of this region which is noteworthy for its vertical interpetiolar ridges.

**Parathesis multiflora** Lundell, sp. nov. – Arbor parva; ramuli crassiusculi, novelli minute rufo-puberuli; folia petiolata, petiolo 1.5–2 cm. longo; lamina membranacea, adulta glabra, anguste elliptica vel oblanceolato-elliptica, 7–12.5 cm. longa, 2.3–4.3 cm. lata, apice acuminata, basi attenuata, integra; inflorescentia axillaris, multiflora, magna, bi- vel tripinnatim paniculata, subglabra; pedicelli 3–5 mm. longi; flores 5-meri, umbellati, ca. 4 mm. longi; sepala parva, subulata, usque ad 1 mm. longa; petala lineato-picta, extus minute puberula; stamina ca. 2 mm. longa; filamenta glabra, 0.6–0.7 mm. longa; antherae erectae, anguste lanceolatae, ca. 1.5 mm. longae, acuminatae, dorso area parce et minute punctata praeditae; ovarium glabrum: ovula 7–11, uniseriata.

Small tree, 3 m. tall; branchlets dark brown, the indument very minute; leaves with slender canaliculate petioles, the petioles 1.5–2 cm. long, with minute brown indument at first, glabrous early; leaf blades membranaceous, narrowly elliptic or oblanceolate-elliptic, 7–12.5 cm. long, 2.3–4.3 cm. wide, apex acuminate, base acuminate and decurrent on petiole, entirely glabrous at maturity, entire, punctate, the midvein elevated beneath, impressed above, the lateral nerves slender, 22-24 pairs, ascending at wide angle; inflorescences axillary, 2- or 3-pinnately paniculate, up to 17 cm. long, multiflowered, obscurely and minutely puberulent, appearing to be glabrous; flowers small, 5-parted, umbellate, the peduncles short, the pedicels glabrous, slender, 3–5 mm. long; calyx very small, up to 1 mm. long; sepals very narrowly triangular, subulate, essentially glabrous; petals narrowly triangular, about 4 mm. long, minutely puberulent outside, papillose-tomentose on inner surface except at base, the glands linear; stamens about 2 mm. long; filaments short, glabrous, 0.6–0.7 mm. long; anthers about 1.5 mm. long, erect, attached above base, narrowly lanceolate, widest at base, tapering to the acuminate apex, with small reddish dorsal glands; ovary and style glabrous, the style slender, about 4 mm. long; ovules uniseriate, 7–11.

Mexico: Chiapas, S Juan Panama, Escuintla, in wet forest, July 23, 1948, *Eizi Matuda 18066* (F, type; LL, fragment).

Related to *P. melanosticta* (Schlecht.) Hemsl., *P. multiflora* differs notably in its large multiflowered panicles, smaller flowers, and glabrous ovary and style. The indument is so minute that it is scarcely discernible, and only the youngest leaves have the minute pubescence on lower surface.

# WRIGHTIA

## Volume 4

## Index


*Acrodiclidium amarum*, 99
*Appelii*, 99
*aureum*, 99
*brasiliense*, 99
*Camara*, 99
*caryophyllatum*, 99
*chrysophyllum*, 99
*debile*, 100
*endlicheriaefolium*, 100
*foveolatum*, 100
*jamaicense*, 100
*latifolium*, 100
*macrophyllum*, 100
*Mahuba*, 100
*Martinianum*, 100
*Meissneri*, 100
*multiflorum*, 100
*Mutisii*, 100
*oppositifolium*, 101
*rigidum*, 101
*sericeum*, 101
Aguilar H., Mercedes, 97
Allen, Paul H., 54
*Amellus villosus*, 14
Ames, Oakes, 2, 3
Amomis, 159, 180
*Amphitecna macrophylla*, 170
Amyris attenuata, 110
belizensis, 110
chiapensis, 110, 111
elemifera, 111
guatemalensis, 111
sylvatica, 111
Anaxagorea guatemalensis, 156
Aniba, 31
guatemalensis, 98
parvissima, 31
Annonaceae, 156
Anoda cristata, 76
pygmaea, 75
Wrightii, 76
*Aplopappus canescens*, 16
Aquifoliaceae, 135
Ardisia, 31, 46, 53, 153, 165, 173
acutissima, 53
Allenii, 53, 54
Alstonii, 159
angustifolia, 62
antonensis, 44
*Austin-Smithii*, 68
belizensis, 46, 55, 59
bella, 54
blepharodes, 55, 57, 59, 146, 166
chahalana, 55
colombiana, 44, 162
compressa, 46, 60, 120, 153, 160
conoidea, 56
Cookii, 56
copeyana, 45, 63
crassipes, 57
cuneata, 57, 58
darienensis, 58
Dukei, 45, 65
Dwyeri, 145, 146, 166
Edwardsii, 58
Fendleri, 45, 46
fimbrillifera, 180, 181, 183
foetida, 59, 66, 166
geniculata, 67
glanduloso-marginata, 61
glomerata, 58, 182
gorgonae, 163
guianensis, 60, 160
guttata, 59

Hagenii, 57, 59
horquetensis, 181, 182
jamaicensis, 120
Lasseri, 59
Lewisii, 146, 147
longicaudata, 56, 60
mammosa, 60, 61
matagalpana, 61
megistophylla, 147, 148
*meridensis,* 166
*micrantha,* 69
micranthera, 69
microcalyx, 46
*minor,* 68
minutiflora, 62
nervosissima, 62
Nevermannii, 47
nigrita, 161
nigropunctata, 65
obovalifolia, 162
opaca, 47
opegrapha, 164
*ovandensis,* 73
*pallidiflora,* 182
palmana, 55, 181, 183
panamensis, 173, 182
perinsignis, 163
picturata, 164
Pittieri, 53
platyphylla, 62
polyantha, 63
polydactyla, 63
Proctori, 4
*propinqua,* 166
pulverulenta, 64, 65
reflexiflora, 164
revoluta, 58
*Robinsonii,* 166
robusta, 54
rufa, 182, 183
rufidula, 65
salvadorensis, 148
sapida, 65
Scheryi, 45, 48
Schlimii, 65
scoparia, 58, 65
siltepecana, 66
*Sintenisii,* 68
*spectabilis,* 72, 169
*staminosa,* 69
Standleyana, 64
Storkii, 47, 48
subcuneifolia, 66
subsessilifolia, 48, 183
tenuis, 148, 150
terrabana, 66
Tysonii, 165, 166
valida, 55
Wedelii, 45, 56, 148
Whitei, 67
zuliana, 67
Arenaria, 26
Aristeguieta, Leandro, 53
Aristolochia belizensis, 173, 174
Chapmaniana, 174
petenensis, 174
sericea, 174
Aristolochiaceae, 173
Aureolaria flava, 28
pectinata, 28
*Aydendron Canella,* 99
*cayennense,* 99
*pachycarpum,* 101
Bartlett, H. H., 97, 129
Bauhinia Gentlei, 88
Beilschmiedia, 99
Bertiera guianensis, 50
tenuis, 49, 50
Bignoniaceae, 170
Blake, William P., 75
Bombacaceae, 140
Brazoria, 29
arenaria, 29, 30
pulcherrima, 29, 30
scutellarioides, 30
truncata, 29, 30
*Bumelia punctata,* 121
Bunchosia petenensis, 34, 35
pilosa, 35
Bursera itzae, 89

Simaruba, 89
Simaruba var. yucatanensis, 89
Calyptranthes izabalana, 142, 143
megistophylla, 179
mexicana, 41, 143
Millspaughii, 116
pallens, 116, 143
pallens var. pallens, 116
pendula, 40
perlaevigata, 40
Tonii, 40
venulosa, 40, 41
Capparis Lundellii, 86
Casimiroa microcarpa, 89
Celastraceae, 79, 112, 136, 153, 157, 178
*Celastrus octogonus*, 158
*orbicularis*, 158
Centaureum Beyrichii var. Beyrichii, 76
Beyrichii var. glanduliferum, 76
Cerastium Clawsonii, 25
*Chrysopsis*, 8
sect. *Achyraea*, 9, 13
*adenolepis*, 11
*alpicola*, 14
*alpicola* var. *glomerata*, 14
*amplifolia*, 14
*angustifolia*, 14, 16
*argentea*, 10
*arida*, 18
*aspera*, 11
*Bakeri*, 14
*Ballardi*, 14
*Barbata*, 14
*Berlandieri*, 16
*Butleri*, 14
*caespitosa*, 14
*californica*, 14
*canescens*, 16
*canescens* var. *nana*, 17
*caudata*, 14
*columbiana*, 14
*compacta*, 18
*Cooperi*, 14
*Correllii*, 11
*cryptocephala*, 17
*depressa*, 14
*elata*, 14
sect. *Euchrysopsis*, 13
*floribunda*, 17
*floridana*, 13
*floridana* var. *floridana*, 13
*foliosa*, 14, 15
*foliosa amplifolia*, 14
*foliosa imbricata*, 14
*fulcrata*, 17
*graminifolia*, 10, 11
*graminifolia* var. *aspera*, 11
*graminifolia* var. *litifolia*, 10
*grandis*, 14
*hirsuta*, 14
*hirsutissima*, 14
*hispida*, 14, 18
*hispida* var. *stenophylla*, 16
*horrida*, 17
*imbricata*, 14
*Jonesii*, 14
*latifolia*, 10
*mariana*, 13
*mariana* f. *efulgens*, 13
*mariana* var. *floridana*, 13
*mariana* var. *macradenia*, 13
*microcephala*, 10
*mollis*, 14, 15
*nervosum*, 11
*nervosum* var. *stenolepis*, 11
*nervosum* var. *virgata*, 11
*Nuttallii*, 13
*oligantha*, 11
*pedunculata*, 14
subgen. *Phyllopappus*, 13
subgen. *Phyllotheca*, 13, 14
*pilosa*, 13
*pumila*, 14
*resinolens*, 17
*scabrifolia*, 16
*senilis*, 17
*sessiliflora*, 14
*stenophylla*, 16

*Tracyi*, 10
*villosa*, 14, 18
*villosa* var. *angustifolia*, 15, 16
*villosa* var. *canescens*, 16
*villosa* var. *discoidea*, 14
*villosa foliosa*, 14, 15
*villosa* var. *foliosa*, 15, 16
*villosa hispida*, 14
*villosa* var. *hispida*, 14
*villosa β minor*, 14
*villosa* var. *scabra*, 14
*villosa* var. *sessiliflora*, 14
*villosa* var. *stenophylla*, 16
*villosa* var. *viscida*, 18
*viscida*, 18
*wisconsinensis*, 15
Cissus Matudae, 113, 114
oaxacana, 112
oxydon, 113
pallidiflora, 112
salutaris, 114
sicyoides, 113
subtruncata, 112
Clematis dioscoreifolia, 74
virginiana, 74
Coccoloba diversifolia, 34
escuintlensis, 175
oligocarpa, 34
Schippii, 174, 175
*Comomyrsine Schlimii*, 72
Contreras, Elias, 79, 97, 98, 130
Cook, O. F., 97
Cordia diversifolia, 49
petenensis, 49
sect. Pilicordia, 49
Correll, Donovan S., 21, 25, 74, 172
Correll, Helen B., 25, 74
*Crescentia macrophylla*, 170
Cybianthopsis, 68
Sintenisii, 68
Cymodocea filiforme, 74
*manatorum*, 74
Diospyros Schippii, 170
*Diplogon*, 12
*graminifolium*, 11
*mariana*, 13
*villosum*, 14
*villosum* var. *discoideum*, 14
*Diplopappus graminifolius*, 11
*hispidus*, 14
*marianus*, 13
*sericeus*, 10
*villosus*, 14
Drypetes Brownii, 178
guatemalensis, 177, 178
Duke, James A., 53
Ebenaceae, 170
*Echinospermum pinetorum*, 26
Egler, Frank E., 97
Enallagma, 170
macrophylla, 170
*Erigeron glandulosum*, 10
*nervosum*, 9, 10
Erythroxylaceae, 175
Erythroxylon areolatum, 177
brevipes, 177
chiapense, 175
eugenioides, 175, 176
guatemalense, 176, 177
pallidum, 175
tikalense, 177
Euanoda, 76
Eugenia amatenangensis, 116
bumelioides, 41
calciphila, 93
Capuli, 117
capulioides, 93
carranzae, 92, 93
cayoana, 143, 144
chacteana, 93
chahalana, 93
cumbreana, 179, 180
fiscalensis, 94
gigas, 41
izabalana, 144
laevis, 93
letreroana, 95
macancheana, 41
magoana, 117

pachychlamys, 94
perpunctata, 118
Ravenii, 94
savannarum, 118
tenejapensis, 119
tikalana, 117
toledinensis, 94
Tonii, 95
vesca, 180
yucatanensis, 119, 144
Eugrammadenia, 68
Euonymus, 153
*acuminatus*, 153, 157
Benthamii, 153, 157
chiapensis, 136, 157
corymbosus, 157
costaricensis, 157
enantiophyllus, 157
mexicanus, 157
Euphorbiaceae, 134, 177
Euwimmeria, 92
Flacourtiaceae, 141
Flora of Texas, 171
Forestiera rhamnifolia, 170
Fraxinus bicolor, 95
petenensis, 95
Gentle, Percy, 98, 129, 130
Gentlea, 69
Austin-Smithii, 68, 69
micranthera, 69
*minor*, 68
Molinae, 150, 151
propinqua, 166
Standleyi, 69
venosissima, 151, 166
*Gerardia flava*, 28
*pectinata*, 28
Graffenrieda Gentlei, 43
intermedia, 43
Grammadenia, 68, 70, 71
acuminata, 68, 69, 70
costaricana, 70, 71
subgen. *Cybianthopsis*, 68
linearifolia, 70, 71
minor, 71
*Sintenisii*, 68
Graphardisia, 164
Guapira, 79, 81, 131
acuminata, 79
areolata, 80
asperula, 80
boliviana, 80
Bracei, 80
Broadwayana, 80
Cafferiana, 80
campestris, 80
cephalantha, 80
combretiflora, 80
coriifolia, 80
cuspidata, 80
discolor, 80
Dussii, 80
Eggersiana, 80
ferruginea, 80
floribunda, 80
floridana, 80
fragrans, 80
graciliflora, 81
Harrisiana, 81
Hassleriana, 81
Heimerliana, 81
hirsuta, 81
Hoehnei, 81
insularis, 81
itzana, 81, 131
kanukuensis, 81
laxiflora, 82
Leonis, 82
ligustrifolia, 82
linearibracteata, 79, 81, 82
Loefgrenii, 82
longicuspis, 130, 131
longifolia, 82
luteovirens, 82
microphylla, 82
myrtiflora, 82
nitida, 82
noxia, 83
obtusata, 83
obtusiloba, 83

Olfersiana, 83
Pacurero, 83
paraguayensis, 83
parvifolia, 83
pernambucensis, 83
petenensis, 79
potosina, 83
pubescens, 83
Riedeliana, 83
rotundata, 83
rotundifolia, 83
rufescens, 83
Rusbyana, 83
salicifolia, 83
Schomburgkiana, 83
Snethlagei, 84
suborbiculata, 84
suspensa, 84
tomentosa, 84
uberrima, 84
Uleana, 84
venosa, 84
Warmingii, 84
Guayabillo, 143, 179
Guettarda, 50
macrosperma, 125
petenensis, 124
tikalana, 50, 125
Hackelia floribunda, 26
pinetorum, 26
Hampea ovatifolia, 140
trilobata, 141
Harms, Vernon L., 8
Harrar, J. George, 5
*Hectorea*, 12
Heterotheca, 8, 12, 13
*angustifolia*, 16
camporum, 14, 15
canescens, 16
sect. Chrysopsis, 12, 13
floribunda, 17
*foliosa*, 15, 16
fulcrata, 17, 18
gossypina, 13
graminifolia, 9, 10, 11
sect. Heterotheca, 8, 12, 18
horrida, 17, 18
latifolia, 8, 9
latifolia var. arkansana, 9
latifolia var. latifolia
latifolia var. Macgregoris, 9
mariana, 13
mariana subsp. floridana, 13
mariana var. macradenia, 13
nervosa, 10, 11
oligantha, 10, 11
pilosa, 13, 14
sect. Pityopsis, 9
psammophila, 8
*sessiliflora*, 15
stenophylla, 16, 17
subaxillaris, 8
subaxillaris var. petiolaris, 9
subaxillaris var. procumbens, 8
trichophylla, 13, 14
villosa, 13, 14, 15, 16, 17, 18
villosa var. angustifolia, 15, 16
villosa var. foliosa, 15
viscida, 18
*wisconsinensis*, 15
Heyfeldera, 9
*sericea*, 10
Hieronyma alchorneoides, 135
ovatifolia, 134, 135
Hybanthus chiapensis, 36, 37
elatus, 37
Proctori, 37
verbenaceus, 37
Icacinaceae, 139
Ilex Tonii, 135
*Inula*, 12
*argentea*, 10
*graminifolia*, 9, 10, 11
*graminifolia β tenuifolia*, 10
*mariana*, 13
*villosa*, 14
Izabalaea, 153
excelsa, 154
Johnston, Marshall C., 21, 25, 74, 172

Labiatae, 29
*Lappula pinetorum*, 26
Lauraceae, 31, 97, 98, 132, 156
*Laurus armeniaca*, 99
*limbosa*, 100
*parvifolia*, 101
*Pucheri*, 101
*Quixos*, 101
*salicifolia*, 101
Leonurus sibiricus, 27
Licaria, 98, 99
alata, 156
areolata, 156
*Aritu*, 99
*Brittoniana*, 99
capitata, 32
coriacea, 32
*Duartei*, 100
excelsa, 32
glaberrima, 32
*guatemalensis*, 100
*Maguireana*, 100
misantlae, 33
oblongifolia, 32, 100
*Quirirafuina*, 101
reclinata, 32
*reclinata*, 101
*Schultesii*, 101
*simulans*, 101
*subbullata*, 101
*tenuifolia*, 101
tikalana, 157
triandra, 32
urceolata, 33
*urceolata*, 102
*wilhelminensis*, 102
Lilium Michauxii, 25
philadelphicum var. andinum, 25
*umbellatum*, 25
Loasaceae, 21
Lundell, Cyrus Longworth, 1, 2, 5, 7, 29, 31, 53, 79, 97, 98, 129, 153, 171, 172, 173
Herbarium, 8, 25, 74, 97, 129
Rare Book Library, 1, 2, 3, 4, 5, 6, 7
Malaxis Ehrenbergii, 25
Manual of the Vascular Plants of Texas, 172
Mappia multiflora, 139, 140
racemosa, 140
Marsdenia tikalana, 49
Martin, R.D., 97
*Matelea tikalana*, 49
Matuda, Eizi, 98
Maxon, William R., 129
Maytenus, 158
belizensis, 136
Corei, 136, 137
Duqueana, 137
guatemalensis, 90, 91
*Lambii*, 92
*obovatus*, 158
octogona, 158
*orbicularis*, 158
*phyllanthoides*, 158
*texana*, 159
tikalensis, 90
*viscifolia*, 159
*Vitis-idaea*, 159
Woodsonii, 178
Meliaceae, 133
Mentodendron, 180
guatemalense, 180
Mentzelia, 21
albescens, 24
sect. Bartonia, 21
humilis, 23
mexicana, 21, 22, 23
multiflora, 21, 22, 23
nuda, 24
pumila, 24
pumila var. *Reverchonii*, 24
Reverchonii, 24
saxicola, 22, 23
Wrightii, 24
Mez, Carl, 53
Microtropis, 138
*areolata*, 138
*contracta*, 138

*guatemalensis*, 138
*ilicina*, 138
*occidentalis*, 138
*Schiedeana*, 138
*Standleyi*, 138
*stipitata*, 138
Misanteca, 98
amara, 99
Appelii, 99
Aritu, 99
armeniaca, 99
aurea, 99
brasiliensis, 99
Brittoniana, 99
Camara, 99
Canella, 99
capitata, 102
caryophyllata, 99
cayennensis, 99
chrysophylla, 99
cubensis, 99
cymbarum, 100
debilis, 100
Duartei, 100
endlicheriaefolia, 100
foveolata, 100
guatemalensis, 100
jamaicensis, 100
latifolia, 100
limbosa, 100
macrophylla, 100
Maguireana, 100
Mahuba, 100
Martiniana, 100
Meissneri, 100
multiflora, 100
Mutisii, 100
oblongifolia, 100, 102
oppositifolia, 101
pachycarpa, 101
parvifolia, 101
polyphylla, 101
Pucheri, 101
Puchury-major, 101
Quirirafuina, 101
Quixos, 101
reclinata, 101
rigida, 101
salicifolia, 101
Schultesii, 101
sericea, 101
simulans, 101
subbullata, 101
tenuifolia, 101
tikalana, 101, 102
*tikalana*, 157
urceolata, 102
vernicosa, 102
wilhelminensis, 102
Monarda, 27
fruticulosa, 27, 77
maritima, 27, 77
*punctata* var. *maritima*, 27
viridissima, 76
Morton, C. V., 53
Mortoniodendron, 36
guatemalense, 35
sulcatum, 36
vestitum, 36
Mouriri completens, 43
petenensis, 43
Myrcia, 42
guatemalensis, 42
*guatemalensis*, 159, 180
Myrciaria longicaudata, 144, 145
Myrsinaceae, 46, 53, 120, 145, 153, 159, 180
Myrsine, 121
*floridana*, 121
*punctata*, 121
Myrtaceae, 42, 79, 97, 116, 142 159, 179
National Science Foundation, 25, 74
Nectandra colorata, 33
corzoana, 102
Davidsoniana, 106
Gentlei, 105
magnifolia, 103, 104
mopanensis, 104, 105

nigrita, 132
*polyphylla*, 101
rubriflora, 104
salvadorensis, 105
Skutchii, 34
Tonii, 106
venosissima, 106, 107
Whitei, 132
Neea, 81, 131
flavifolia, 131, 132
guatemalensis, 84
parvifolia, 84, 85, 86
petenensis, 85
*rotundifolia*, 83
stenophylla, 85
transparens, 85, 86
*Neotuerckheimia megalophylla*, 170
Nicotiana longiflora, 27
plumbaginifolia, 27
*Nobeliodendon cubense*, 99
Nyctaginaceae, 79, 130, 153
Ocotea Clarkei, 133
*cymbarum*, 100
eucuneata, 108
euvenosa, 157
laetevirens, 133
*Puchury-major*, 101
racemiflora, 107, 108
tenejapensis, 108
*venosa*, 157
*vernicosa*, 102
Oleaceae, 170
Orthion, 116
caudatum, 38, 178, 179
malpighiifolium, 116
montanum, 115, 116
Palo lagarto, 44
Parathesis, 31, 69, 153, 173
*acutissima*, 53
amplifolia, 151
Breedlovei, 71, 72
gracilis, 48, 49
macronema, 49
melanosticta, 184
*micranthera*, 69
microcalyx, 71, 72
montana, 166, 167
multiflora, 183, 184
pyramidalis, 151
Rekoi, 49
Rothschuhii, 168
tenuifolia, 167, 168
tenuis, 49
venezuelana, 167
vulgata, 167
Peck, Morton E., 129, 130
Persea, 107
petenensis, 109, 110
Phoebe areolata, 110
trinervis, 110
Pickeringia, 65
Pimenta, 42, 43, 159, 180
guatemalensis, 159
*guatemalensis*, 180
Pisonia aculeata, 86
*areolata*, 80
*boliviana*, 80
*Broadwayana*, 80
*Cafferiana*, 80
*calophylla* var. *rufescens*, 83
*campestris*, 80
*combretiflora*, 80
*coriifolia*, 80
*cuspidata*, 80
*discolor*, 80
*discolor* var. *longifolia*, 82
*Eggersiana*, 80
*ferruginea*, 80
*floribunda*, 80
*floridana*, 80
*fragrans*, 80
*graciliflora*, 81
*Harrisiana*, 81
*Hassleriana*, 81
*hirsuta*, 81
*laxiflora*, 82
*ligustrifolia*, 82
*linearibracteata*, 82
*longifolia*, 82

*luteovirens*, 82
*microphylla*, 82
*nitida*, 82
*noxia*, 83
*obtusata*, 83
*obtusiloba*, 83
*Olfersiana*, 83
*Pacurero*, 83
*paraguayensis*, 83
*pernambucensis*, 83
petenensis, 86, 155
Proctori, 155
*pubescens*, 83
*Riedeliana*, 83
*rotundata*, 83
*rufescens*, 83
*Rusbyana*, 83
*salicifolia*, 83
*Schomburgkiana*, 83
*suborbiculata*, 84
*suspensa*, 84
*tomentosa*, 84
*Uleana*, 84
*venosa*, 84
*Warmingii*, 84
*Pityopsis argentea*, 10
*aspera*, 11
*graminifolia*, 11
*graminifolia* var. *latifolia*, 11
*microcephala*, 10
*oligantha*, 11
*Tracyi*, 11
Polygonaceae, 174
Potentilla paradoxa, 74
rivalis, 75
Proboscidea spicata, 77
Proctor, George R., 130, 173
Prunus erythoxylon, 87
guatemalensis, 87
Lundelliana, 88
myrtifolia, 88
potosina, 87
siltepecana, 87
tartarea, 87, 88
tikalana, 88
Quetzalia, 137, 138
areolata, 138
contracta, 138
guatemalensis, 138
ilicina, 138
occidentalis, 138
Schiedeana, 138
Standleyi, 138
stipitata, 138
Randia blepharodes, 127
canescens, 127
Gentlei, 125
habrophlebia, 126
letreroana, 126, 127
longiloba, 126
Lundelliana, 127
monantha, 126
petenensis, 127, 128
Rapanea, 121, 153
Allenii, 168, 169
*guyanensis*, 121
panamensis, 169
pellucido-punctata, 169
punctata, 121, 169
Raven, Peter H., 53, 79, 98
Record, Samuel J., 129
Rinorea belizensis, 38, 39
deflexiflora, 39
Gentlei, 39, 40
guatemalensis, 39
mexicana, 39
Rockefeller Foundation, 5
Roddy, Roy, 1
Rubiaceae, 124
Rutaceae, 110
Schipp, William A., 97, 129
Schlegelia Gentlei, 95, 96
Ramizii var. trichandra, 96
Schoepfia Schreberi, 155
Sebastiania chahalana, 90
chiapensis, 35, 90
Sickingia lancifolia, 50, 51
lancifolia var. puberula, 51
*mollis*, 51
salvadorensis, 51

vestita, 51
*Sideranthus*, 12
*integrifolius*, 14
Sideritis lanata, 27
*Sideroxylum punctatum*, 121
Smith, A. C., 53
Smith, Donnell, 53
Southern Methodist University, 8
Sprague, F. A., 130
Standley, Paul C., 53, 79, 98, 129, 130
Steyermark, Julian A., 97, 130
Stylogyne Hayesii, 62
oaxacana, 72
Styracaceae, 121
Styrax glabrescens, 121
vestitus, 121
Symphoricarpos guadalupensis, 28
Palmeri, 28
Symplocaceae, 122, 152
Symplococarpon Brenesii, 115
flavifolium, 114
guatemalense, 114, 115
lucidum, 115
Symplocos blepharodes, 152
Breedlovei, 122
chiapensis, 122
coccinea, 123
flavifolia, 152
Hintonii, 122, 123
limoncillo, 122
longipes, 123, 124
Matudae, 122, 124
Molinae, 152
vernicosa, 124
Syringodium filiforme, 74
Texas A & M University, 8
Texas Research Foundation, 1, 3, 4, 5, 6, 7, 8, 172
Theaceae, 114
Thompson, Henry J., 21
*Torrubia asperula*, 80
*Bracei*, 80
*cephalantha*, 80
*Dussii*, 80
*Heimerliana*, 81
*Hoehnei*, 81
*kanukuensis*, 81
*Leonis*, 82
*Loefgrenii*, 82
*longifolia*, 82
*myrtiflora*, 82
*parvifolia*, 83
*potosina*, 83
*Snethlagei*, 84
*suborbiculata*, 84
*uberrima*, 84
Triadophora, 73
Tricerma, 153, 158
crassifolium, 158
obovatum, 158
octogonum, 158
orbiculare, 158
phyllanthoides, 158
texanum, 159
viscifolium, 159
Vitis-idaeum, 159
Trichilia oligantha, 134
petenensis, 133, 134
University of Michigan Herbarium, 129
University of Texas, 8
Urban, I., 53
Violaceae, 115, 178
Vitaceae, 112
Weigeltia, 153
purpurea, 148
Schlimii, 72, 73
spectabilis, 169
Wild calabash, 126
Wimmeria acuminata, 91
Bartlettii, 92
chiapensis, 91, 92
concolor, 92
Lambii, 92
montana, 92, 122
persicifolia, 91
Wimmeriella sect. Leiocarpae, 91
Xylosma albidum, 141
Yunckeria ovandensis, 73
Zavortink, Joyce E., 21
Zinowiewia costaricensis, 139, 178
ovata, 178
sulphurea, 139